THE BRISTOL

Medico-Chirurgical Journal.

DECEMBER, 1888.

SOME RECENT DEVELOPMENTS OF THE GERM THEORY, MORE PARTICULARLY IN RELATION TO THE TREATMENT OF PHTHISIS.

The Presidential Address,
delivered on October 10th, 1888, at the opening
of the 15th Session of the Bristol Medico-Chirurgical Society.

BY

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TWICE in the history of this Society have our presidents directed the attention of its members to the influence of germs in the production of disease. Our first president, Dr. Brittan, in the year 1874, propounded, illustrated, and illuminated this question: first, from what we know of diseased blood, and of the "blood diseases;" secondly, from what we know of the blood-germs, and bioplastic matter; whether, thirdly, there is not good ground for supposing these "blood diseases" to be due to morbid conditions of the blood-germs. Four years later, Dr.

Henry Fripp illustrated the doctrine of *contagium vivum* in its relation to parasitic disease, from which I quote the following paragraphs. He says: "The germ theory has to those who accept it such momentous issues, that the study of the life history of the germ becomes the *sine quâ non* of its acceptance as a living contagium. For if it be regarded as the determining cause of infective disease and of its specific character, the proof that it is an independent organism, which can live and maintain its typical development unaffected by its surroundings, and finally breed true, is necessary before any reliance can be placed in the supposition that invariability of the morbid phenomena and of their sequence, in a word, of the type of disease, is the direct consequence and visible expression of the phases of germ life. This implies that each low organism detected and charged with the crime of poisoning has no *alias*, no variety of reproductive form or phase in its life history, or else that it is contagious in one particular form."

Again, he adds: "From the above considerations, it appears that the germ theory represents, though in a more precise and material form than was possible in premicroscopic times, the long dormant doctrine of *contagium vivum*. The germ is said to be that actual concrete material entity, named when it was still but an abstract conception, *contagium*, on account of its observed and experienced effects. It embodies the hypothesis of parasitic contagium, and justifies the predicate *vivum*."

It was from our own city, although our Society is not old enough to claim its author, that, in 1867, the doctrine of the contagiousness of phthisis was first announced to the world by Dr. William Budd,* whose name should also

* *Lancet*, Vol. II. 1867.

be inseparably associated with the doctrine of the propagation of fevers by "fever seed."

I wish this evening to illustrate this question still further, in the light of discoveries which are now universally admitted to be intimately connected with the cause of phthisis. My immediate predecessor, in that eloquent address of last year which we all remember, remarked that "our hospitals are not affording us the information we have a right to expect from them." Accordingly, on thinking over a subject for this evening, I decided to attempt an outline of the various attempts we have made in our hospital work towards elucidating the problems of treatment associated with the germ theory of phthisis. Professor Jaccoud, in 1884, asserted with emphasis that the germ theory had as yet done nothing for phthisical patients. We may now not unprofitably enquire whether it has not done, and is not doing, much which may be of benefit, even although the results may often appear to be disappointing and unprofitable.

One great fact is an obvious outcome of the conclusion that, if the bacillus is the *materies morbi*, the *contagium vivum*, we no longer doubt the possibility of the dissemination of the disease by means of particulate germs, such as are believed to exist in all contagious diseases, and which are now proved for phthisis. This is no new idea, but it is one which has been actively combated, and even in recent years denied, because of the limited manifestations of contagion which are commonly met with. We may now consider that this question of contagion is definitely settled; for, if a local tuberculosis commonly results from the inoculation of a pure cultivation of the bacillus, and does not arise from anything from which the bacillus is certainly excluded, what possible escape can we

find from the conclusion that the disease resulting from the presence of this contagion may be disseminated as other contagious diseases are?

The resolutions adopted by the Congress for the study of tuberculosis at its recent meeting in Paris, to which you did me the honour to appoint me as your delegate, afford the best possible proof of the unanimity of opinion on this question, inasmuch as the adoption as an axiom of the contagious nature of tuberculosis was made the foundation of decisive action for the prevention of the disease by legislative regulations, such as are enforced in the case of epidemic and other contagious diseases in animals. The decree, by which this law came into operation in France, was signed by the President of the Republic during the session of the Congress; and here we, doubtless, have one of the most important epochs in the history of the disease.

We do not doubt the possibility of contagion of typhoid, nor do we that of syphilis. All the arguments which have been used against the contagiousness of phthisis may be applied with almost equal force to either or both of these affections. Further, the question of leprosy has been often discussed, and opinions have varied just as they have with phthisis. Now that a bacillus of leprosy is an admitted fact, and a bacillus of syphilis a probable one, may we not class these affections together, and reason by analogy from one to the other? The arguments with regard to the contagion of leprosy and tuberculosis appear to have been almost identical, and have chiefly been founded on the fact that the disease has not spread in either leper or consumption hospitals. Is it not probable that the admission of the possibility of contagion in one case as in the other may be the beginning of a new era in the history of both?

It has been said* that "the civilised world, medical and lay, is rather apathetic about consumption. It has gotten rid of the plague, and nearly rid of typhus epidemics; leprosy has been driven out of England, and smallpox has been made manageable: but one death in seven from all causes is still due to *tuberculosis pulmonum*, and some part of the remainder is due to other tuberculous diseases. If we feared these diseases as they merit, as we do the cholera or yellow-fever, we would in time suffer less from their ravages. But we have strangely grown used to them, and view them with a sort of fatalistic indifference, broken now and then by a ripple of interest awakened by the discovery of some new fetish—a wash-bottle, or an air-tight box, or some ingenious device, the impotent offspring of mechanical skill and ignorance of pathology."

A writer in the current number of the *Medical Chronicle* remarks that "Disinfection, or, in other words, the destruction of the *contagium vivum*, is the most effective means of combating the infectious diseases. The shortcomings of this means of treatment do not spring from a want of methods, but from our deficient knowledge of the exact nature of the contagia in the different diseases, and because we do not yet know how those contagia are affected by the various physical and chemical agents proposed for their destruction." Even methods which, from experiments in the laboratory, appear to be perfect, fail when adopted in practice. The same means which will be effectual with one kind of contagium, will be inert in another. A recent publication† advocates the biniodide

* *International Journal*, October, 1888.

† *The Abortive Treatment of Specific Febrile Diseases by the Biniodide of Mercury*. Illingworth. Lewis, 1888.

of mercury in doses of $\frac{1}{16}$, $\frac{1}{8}$, or $\frac{1}{4}$ grain three times a day, and the author has no doubt as to its efficacy in small-pox, typhus, plague, relapsing fever, dengue, yellow fever, hydrophobia, glanders, and leprosy; because he has successfully treated in this way scarlet fever, diphtheria, measles, chicken-pox, whooping-cough, mumps, enteric fever, pyæmia, puerperal fever, and syphilis.

Now, tuberculosis is almost the only specific contagious disease excluded from this list; but we fail to see why it should be so excluded from the range of operation of this omnipotent germ-slayer. Other authors have attempted to utilise this drug in the treatment of phthisis, and we shall see with what success hereafter.

Utopian as it seems to be to attempt to find a universal remedy against all kinds of specific diseases, and indisposed as we are to accept evidence such as the above, where bald statement takes the place of proof, and unverified inference the place of experience, we believe that with increased knowledge, derived by experiment on each kind of germ product, means of disinfection may possibly be found for each of the members of the group, which may give results similar to the effects of mercury in syphilis, or quinine in ague.

It being conceded that the essential condition underlying the phenomena of phthisis is the *bacillus tuberculosis*, it naturally follows that the destruction of the parasite should be attempted, either by what has been well named the offensive method, the direct action of germicides, or by the defensive method—the rendering the soil unsuitable for its existence. The problem as regards the lung is a complicated one: both lungs being often implicated, or the different lobes of one lung, a large area is involved, and the diseased patch can only be

reached efficiently by the blood-channels. If the lung were a simple cavity, and could be treated as a cold abscess is, by injection, the problem would be comparatively simple: it would then resolve itself into the treatment of a local tuberculosis. It will, then, be well to enquire, first of all, as to the phenomena of a local tuberculosis and its local treatment, before we attempt to deal with the more complex conditions attending diffuse tubercular phthisis.

Now, the best possible illustration of a local tuberculosis is that produced by experimental inoculation in the rabbit's eye, where the different stages of the disease can be gradually watched from the local development of the bacilli up to their gradual dissemination throughout the body by blood- and lymph-channels. These changes have been recently well described in detail by Mr. Barker, in his lectures at the Royal College of Surgeons, published in the *British Medical Journal* (June 9th, 1888), and need not detain us further.

Such inoculations are now well recognised as having frequently occurred in the human subject. Many such are recorded. A series of them is briefly detailed in the *British Medical Journal* of June 2nd, 1888.

A still more remarkable series of cases has been recorded by Lehmann, and quoted by Barker, in which ten children were inoculated into the prepuce from the mouth of the operator, who was dying of tubercular disease of the lungs.

Another striking case, also quoted by Barker, is that of a veterinary surgeon who punctured the joint of his left thumb whilst dissecting a tubercular cow, and who died of bacillary disease in the lungs a year and a half afterwards.

Numerous cases of tuberculosis of the urinary tract have been recorded by Cornil and others,* in which numerous bacilli have been found in the urine. I have myself met with several cases of this kind, one of which, recorded in the *Lancet* (Vol. I. 1883, p. 942), was one of the first in which bacilli had been found in the urine, and was an excellent illustration of tuberculosis beginning in the urinary tract, and limited to it for several years, but becoming afterwards disseminated throughout both lungs in a very virulent and active form. This and some other cases have enforced upon me the necessity for and utility of the examination of urine for bacilli in obscure cases of vesical and renal diseases, where their presence leaves one in no doubt as to the gravity of the disorder; and, on the other hand, their absence enables us to put aside the probability of strumous pyelitis and tubercular cystitis.

Cases of local tuberculosis of skin have been recorded. Babes and Cornil mention three, in which bacilli were found in the tissues diseased. The cases were:

1. Perineal ulcer in a phthisical man.
2. Ulceration of the lower lip of a phthisical woman.
3. Tuberculosis of the vagina in a tubercular subject.

These cases naturally are associated with the questions as to the nature and treatment of lupus, a disease which commonly has been more associated with syphilis than with tuberculosis, but which has now been shown to be essentially tuberculous in its nature, although not often accompanied by or leading to acute tubercular disease of the lungs or elsewhere. The fact that tubercle bacilli may be found in lupus tubercles, of necessity suggests the importance of active treatment, by which the diseased tissue may be destroyed whilst it is strictly local; and,

* *London Medical Record*, November, 1883.

on the other hand, the rarity of dissemination of this disease illustrates the importance of the suitability of soil in which bacilli are implanted, in order that they may germinate actively and become disseminated: it is interesting to observe that the principal methods of medicinal treatment in vogue, cod-liver oil and arsenic, are just those which might be expected to render the soil unsuitable.

Another form of local tuberculosis of considerable interest to the surgeons is that of the bones and joints. It has now been clearly shown that there is no difference between tubercular and scrofulous diseases of bones;* the characteristic giant cells in association with lymph-cells, and the presence of bacilli, which, although difficult to find, have been found by Koch and other observers. These facts, confirmed by the production of artificial tuberculosis by inoculation of scrofulous material, stamp the scrofulous process as a tubercular one, and enable us to illustrate the general disease from the phenomena of the local one. It is not a little remarkable that the bodies of the vertebræ should be the special habitat of the bacilli; and the question how the parasite finds its way to the cancellous texture of vertebræ or short bones, and should be limited to this one spot in the body, is extremely difficult to answer. As pointed out by Barker,† the pia mater of the child and the medulla of the vertebræ are both removed from external influences, and yet these are the seats not uncommonly chosen for the first manifestation of the presence of tubercle bacilli within the body: he infers that there must be some inherent suitability of soil in certain spots—that, in fact, some tissues are, by

* *Diseases of Bones.* Thomas Jones. p. 175. 1887.

† *British Medical Journal*, June 9th, 1888.

hereditary predisposition, a fertile soil ready for the growth of the germs, if by any means these happen to be engrafted or introduced, either by blood- or lymph-channels. Again, it is of interest to note that a local tuberculosis, even of bone or joint, does not necessarily lead to fatal infection and dissemination. Barker mentions the case of a boy of twelve years of age, operated on thirty-five times in seven years, and cured of tuberculous bone disease at last.

On the other hand, the risk must always be a considerable one, more especially where spinal abscesses are in contact with lung; as in a case of my own, where Mr. Greig Smith aspirated several times a localised empyema resulting from spinal disease, which led ere long to the development of active bacillary phthisis in both lungs.

Dr. Gerster,* of New York, points out an interesting fact in connection with the treatment of tuberculous joint affections. He says that the progress is frequently retarded, or even completely arrested, by the prolonged application of cold in the form of an ice-bag to the affected joint, and that this is in accord with Koch's observations on the growth of the bacillus, which requires a considerable temperature for germinal activity. The spores are not killed by cold, but their propagation is arrested; and in this way time is allowed for strengthening the power of resistance of the organism, and healthy tissues may defend themselves by a protective encapsulating wall of granulation tissue.

Local tuberculosis of joints is to be treated, according to Gerster, by the early finding out and evacuation of tubercular cheesy foci in the epiphysis of the bones before

* *Annals of Surgery*, April, 1888.

the disease has extended to the joint, and by early excision of hip, knee, or ankle, when the joint has become affected; it is necessary to conscientiously remove all the tissues, soft or osseous, which are found to be manifestly diseased. He says "we have to deal with tuberculous tissues as though they were cancerous," and he gives a caution against the possibility, shown by Koenig, of the operative dissemination of tuberculosis, *i.e.* infection by dissemination of the virus from the wound into the circulation by means of the mechanical effects of the operation itself.

Destruction of the part involved is also the keystone of treatment as laid down by Jones of Manchester; but he insists also on constitutional treatment, adding that the prognosis is never hopeless provided there be good food and plenty of fresh air.

Another kind of primarily local tuberculosis is that beginning in the alimentary canal as a result of food contamination, of which the following is one of the most notorious examples, related by Herterich.* A phthisical mother had two little girls, aged respectively fifteen and three months. These children throve well so long as they were suckled; but when they were weaned, their mother used to feed them by chewing their food partially herself, and then putting it in their mouths. For a time all went well; but as her expectoration increased, both children, as a consequence of this disgusting practice, began to emaciate, and died with tubercle in various organs, the mother surviving the children a few months.

The observations of Mosler† on intestinal tuberculosis from swallowing sputa; the presence of tuberculous ulcers

* *Birmingham Medical Review*, March, 1884, p. 141.

† *London Med. Record*, November, 1883.

of the palate, with bacilli, as shown by Guttmann*; the occurrence of tuberculous sloughing of the tonsils, with bacilli in the *débris*, as I have myself observed; the presence of bacilli in abscesses near the anus, in phthisical subjects†; the finding of bacilli in the fæcal evacuation in cases of tuberculous diarrhœa, are illustrations that in the alimentary canal the process is the same as elsewhere, and that bacillary inoculation, growth, and development are the *sine quâ non* of the disease. It has recently been shown by Cornil‡ that penetration by simple contact with the mucous membrane is possible, without any evident lesion; that after an ingestion of some drops of culture into the intestine, bacilli may be found in the mesenteric glands after five or six days. The observations of Chauveau, Villemin, Parrot, and Cornil, have abundantly proved this for the intestinal tract, as also for the pulmonary and vaginal mucous membrane; and it has recently been shown by Arloing§ that, after infection by alimentary canal, it is impossible to arrest the progress of experimental tuberculosis, inasmuch as extirpation of the affected glands was found to be useless. On the other hand, it has been pointed out by Coats‖ that tuberculosis is not usually a penetrating lesion, but that it rather extends on the surface of membranes and along canals or other channels: this is remarkably the case with regard to tuberculosis of the intestine on the one hand, and of the peritoneum on the other. "There is scarcely any tendency to extension of intestinal tuberculosis to the peritoneum generally." "An interesting corollary to this is the converse con-

* *London Med. Record*, November, 1883. † *Lancet*, I. 1883, p. 1108.
‡ *Le Progrès medical*, August 4th, 1888.
§ *Ibid.* ‖ *Lectures to Practitioners.* Longmans, 1888.

dition, in which the peritoneum is the seat of tuberculosis, while the intestine is not affected. Tubercular peritonitis is a superficial tuberculosis of the peritoneum as a whole; but the tubercles apparently confine themselves to that membrane, and do not readily penetrate into the wall of the intestine." "All observers agree that, in at least half of the cases which die of phthisis pulmonalis, tubercular ulceration of the intestine is present. The lesion is due to tubercular material being carried into the stomach and intestine, instead of being discharged by the mouth."

Few attempts have been made to disinfect the alimentary canal, and so to prevent auto-inoculation by this route. The use of carbolic acid, with or without tincture of iodine, according to the method of Rothe in typhoid, and well reported of by Gramshaw (*Lancet*, 1888, I., 1243), might be of service in this respect. In one case I have used the β-naphthol with fairly good result, the patient taking the drug easily in sufficient quantity.

The very numerous experimental researches in inhalation tuberculosis, show the way in which the disease arises locally along the respiratory tract; the injection of pulverised tuberculous sputa into the trachea, by means of a spray producer, giving rise to tubercular changes in the lungs in dogs and rabbits, whereas the injection of non-tuberculous material gave no such result (*London Med. Record*, Nov. 1883, p. 475 and 477).

According to Coats, "The disease begins in the finer bronchial tubes. The focus of the disease in each little centre is an inflamed and tubercular bronchiole." "The bronchioles being the primary seat, we shall find that there are two open channels by which the infection may extend; namely, the air-passages and the lymphatics." The mucous membrane of larger tubes becomes eroded;

exposure and necrosis of the cartilages in the bronchi and trachea occur, as they do also in the larynx, but the smaller bronchi are more affected than the large ones. Cases of general dissemination from auto-inoculation, from bronchial gland, from larynx, and from wall of pulmonary vein, are described by Coats.

The illustrations I have given afford us abundant evidence that, in the great majority of cases, tuberculosis is at the beginning the result of a local infection or inoculation from outside the body: even in the case of the lung it is commonly only one lobe, and even for years the disease may continue to be limited to one lung or even one lobe only. We have at this stage to deal with a local tuberculosis, and the question naturally arises, whether it may not be possible to treat the disease, whilst it is local, in accordance with the same principles which are brought into operation in the case of the other forms of localised tuberculosis to which I have alluded, and with equal success. In accordance with this view, the method of treatment by parenchymatous injection has been attempted, and this it is to which I wish to direct your especial consideration. There are, however, three principal methods by which a focus of disease may be reached medicinally:

a. By the introduction of substances into the blood of the body as a whole.

b. By parenchymatous injections into the part affected.

c. By inhalations, and pulverisations along the air-tubes.

The first method—that of general medication—includes all the ordinary medicinal substances which have had a reputation for utility when given by the alimentary canal, and also the hypodermic method. These two

methods must detain us awhile, as they are a necessary antecedent to the more strictly local measures, by which the substances are caused to reach the part affected, whether it be by injection through the chest-wall, or by insufflation along air-tubes.

My observations in the direction of the general antiseptic treatment of phthisis by internal medication, have been almost entirely limited to two sets of drugs: A. Iodoform and iodol; B. Creasote and guaiacol.

A. The utility of iodoform in lung disease was first pointed out by Semmola, at the International Congress meeting in Amsterdam, in 1878. The cases treated were mostly bronchial catarrh, asthma, broncho-pneumonia. He disclaimed any intention of bringing forward iodoform as a remedy for tuberculosis, or all caseating affections of the lung; but he found that cases of incipient phthisis were cured, and even in advanced cases expectoration is lessened, cough and fever are moderated, caseation is arrested, and life is prolonged. The expectation that the germicide action of the drug might be of service led Dr. Dreschfeld, of Manchester, to administer the drug in a large number of cases, and he claimed the following benefits from its use: increase of weight and appetite, with diminution of temperature, night-sweats, cough and expectoration. At the International Congress of Copenhagen, in 1884, I gave an analysis of forty-six cases, with tables showing variations in weight before and after treatment. An examination of these tables shows that twenty-nine out of the forty-six patients manifested an absolute gain in body-weight; of the remaining seventeen the loss of weight was small, and in many of those the wasting, which had been rapid, was more or less completely arrested.

Since the publication of this paper I have continued the use of iodoform, either in pills or in solution in cod-liver oil, and have had abundant reason to believe in its utility. I regret that the difficulties of getting accurate statistics from out-patients, and the want of time to record and analyse the results of in-patient and home practice, prevent me from giving further mathematical demonstration of the value of the drug. I am well aware of the difficulties associated with the question as to the effects of any drug in such a disease as phthisis, and the fallacies of inferences from a small number of cases observed for only short periods. An excellent illustration of such fallacies is, I believe, to be easily obtained, even with regard to this very drug, which has been asserted to be an immediate and infallible hæmostatic in cases of hæmoptysis.*

Current medical literature teems with illustrations of the satisfactory results to be obtained from iodoform, both in local and general tuberculosis, although the germicide value of the drug has been so frequently called in question; but, as regards its hæmostatic power, several of my cases have had abundant and dangerous hæmorrhage whilst taking the drug in full doses, and after a prolonged use of it: hence I cannot accept the statement that small doses of it will arrest hæmorrhage. The fear of toxic results must have been much exaggerated. Its use in large doses diluted with charcoal, in typhoid fever, for the purpose of disinfecting the alimentary canal, shows it to be a harmless drug in the great majority of cases. The physiological limit of dose probably varies much with the individual case—even small doses irritate some patients; but its insolubility probably prevents any toxic action,

* Chauvin et Jorissenne. *Le prog. Med.*, May 19th, 1888.

even when given to others in larger quantity.* In the great majority of cases there is no idiosyncrasy, and the iodoform agrees well in doses of one grain or more, and may be continued for many months without fear of any toxic results. The combination with terebene, or creasote, either in capsules or in the cod-liver oil, gives us an opportunity of varying the form of administration from time to time, according to the necessities of the case.

Time fails me to allude to the use of iodoform as a local application for tuberculous diseases. As an inunction with lanoline it has been reported to give good results in cases of tubercular meningitis; and still more recently this disease is said to have been treated successfully by iodoform given internally.†

Advantages have been claimed for iodol over iodoform; but I have not found them to be of great value from the medical standpoint, excepting on the ground of greater solubility in ether. This substance, tetra-iodo-pyrrol, C_4I_4NH, containing 89 per cent. of iodine, whereas iodoform, CHI_3, has 96 per cent., being free from odour and taste, may for surgical purposes have advantages which will more than compensate for the slightly smaller proportion of iodine; but for internal use I have never found the odour or taste to be any drawback to the use of iodoform, inasmuch as with coated pills and in cod-liver oil both are effectively concealed; and, as a matter of experience, I have thought that the iodol is not equal in therapeutic value to the other. From both drugs the iodine is easily liberated within the body, and appears in the urine as an alkaline iodide: they are therefore

* *Vide* Transactions of International Congress, Copenhagen, 1886.

† *Le Prog. med.*, 11th August, 1888.

broken up within the body. But it has been shown by Professor Pick, of Prague, that their elimination is much more gradual than is the case with the potassic iodide, traces of iodine being found in the urine five days after the cessation of iodol, but only two days after the cessation of the iodides. The greater solubility of the iodol gives it an advantage for purposes of injection, and I have used it frequently for this purpose: it does not appear to be either more or less irritating to the cellular tissue than iodoform; but inasmuch as both of these drugs usually give rise to some local irritation, I have for the present discarded them in favour of others, which appear to involve less risk of damage to lung, whilst they are likely to be equally effectual in modifying the local pathological process.

B. Creasote has had a considerable reputation in the treatment of lung diseases;* but it is only recently that it has begun to take its place as an efficient germicide in phthisis. The publication of the results obtained by Gimbert and Bouckhardt of ten years ago, and of Sommerbrodt in 1887, has given an impetus in this direction, as tending to show that the value of the drug is in direct proportion to the size of the dose, and that large doses will succeed where small ones have failed, as was the case with Bogdanovitch,† who took five grains four times daily in capsules after food with great benefit, whereas he had previously found that small doses were useless.

I have found that patients readily take it in combination with bitter tinctures and glycerine or cod liver oil; many of my out-patients are taking some such combination, and are progressing favourably under its use.

* *Medical Chronicle*, Oct., 1888. † *Brit. Med. J.*, March 3rd, 1888.

The nauseous taste and irritating properties of creasote have led to the substitution for it of the substance guaiacol, a colourless liquid, having the composition of catechol monomethyl ether, $C_6H_4\begin{cases}OH\\OCH_3\end{cases}$, and contained in beechwood creasote to the amount of 60 to 90 per cent. Sahli of Berne was led to prefer it to creasote because of its more definite composition, and less unpleasant odour and taste. He prescribed it thus:

℞ Guaiacol puriss. ... ... ♏ 15 to 30
Aq. dest. ... ... ℥vj.
Sp. Vini Rect. ... ... ʒvj.

A teaspoonful to a tablespoonful, two or three times a day, after food, in some water.

Frænzel* considers it the active constituent of creasote, and strongly advocates the following formula:

℞ Guaiacol ... ... ʒiiiss.
Træ. Gentian. Co. ... ℥j.
Sp. Vini Rect. ... ... ℥viij.
Vini Xerici q. s. ad Oj.

One tablespoonful, two or three times daily, in a wineglassful of water.

Berlin physicians have given these drugs in gelatinous capsules, and the French physicians have administered them in the well-known "pearls" of creasote and iodoform of Dr. Clertan, in which the more active drugs are dissolved in ether, with the object of facilitating the absorption, diffusion, and transport of the drugs to the lungs, by which route they may be eliminated. In this way creasote can be administered for long periods without inconvenience: Sommerbrodt's patients continued it for several months, and some patients had taken six to twelve hundred capsules

* *Med. Chronicle*, Sept., 1888.

without interruption. I have been in the habit of prescribing capsules containing five grains of creasote in combination with one grain of iodoform, and have not met with any inconvenience or unsatisfactory result from their use, beyond their relative expense in comparison with the solutions in spirit.

Internal administration of drugs by means of rectal and hypodermic injection has been much in vogue of late, and our experience of these two methods will not be devoid of interest.

Bergeon's device of gaseous injections into rectum was tested by myself and colleagues immediately after his results were first announced, but has long ago been discontinued. I have here a record of two cases in which the injections were made with regularity, the carbonic acid being made to bubble through the eaux bonnes, and then to pass into the rectum in quantity amounting to about four litres daily. There was no difficulty in carrying out the process, but it had no effect whatever on the course of the disease or in alleviation of symptoms. This result appears to be pretty much that met with by other observers; and hence the "Bergeon fizzle" is now dead and buried, and the apparatus consigned to the lumber-room.

The hypodermic method, on the other hand, is one which is rapidly becoming more popular, and which seems likely to be of some service in conjunction with other measures. It is argued that the digestive tube is defective in consumptive patients, and that, accordingly, the skin is the best means for the introduction of substances into the blood in sufficient quantity to reach and modify the spot or spots in which the lesions may exist. Various substances and various vehicles for them have been tried, and have met with a measure of success. Carbolic acid has been

used by Dieulafoy and Dujardin-Beaumetz,* Lefaivre,† Filleau and Leon Petit;‡ but eucalyptol, iodoform, iodine, arsenic, and salicylic acid have also been employed in this way. One of the best diluents for the purpose of hypodermic injection was that suggested by Meunier, of Lyons§ —liquid vaseline.

All the various methods of treatment by hypodermic injection are obviously only modifications of general medication, the drug being introduced into the cellular tissue of any part of the body, commonly a healthy part, in order that it may reach the blood and be carried in the blood-stream to the part diseased. It follows that, to be of service, the drug must be introduced in sufficient quantity that the whole mass of blood in the body may have such a percentage as is likely to modify the germ development in the part affected; and the question naturally presents itself, whether it is possible to introduce, either by stomach or by cellular tissue, a sufficient quantity of any potent germicide to influence a diseased focus, without at the same time so poisoning the whole mass of blood as to more than counteract any possible benefit to be obtained. It may be possible to accomplish the end in view, but it is clear that the various methods of hypodermic injection now in use are altogether futile, inasmuch as the quantities introduced are entirely inadequate when distributed throughout the whole mass of the body. It was pointed out by Sternberg,‖ some years ago, that the quantity of iodine required to prevent the development of septic test organisms is one part in four thousand. It follows that the quantity of iodine necessary to prevent

* *Medical Recorder*, March, 1888.

† *Gazette des hôpitaux*, May 12th, 1887, p. 471. ‡ *Bull. de la Phth. Pulm.*, No. 4.

§ *Bull. Gen. de Thérapeutique*, Jan. 15th, 1887.

‖ *American Journal of Med. Sc.*, April, 1883.

the development of the septic micrococci in the blood of an adult man weighing 160 pounds would be 35 grains—a dose of iodine which it is entirely impracticable to administer; but as iodoform contains 96 per cent. of iodine, and as I have found it possible to administer 30 grains daily for a whole month continuously before toxic symptoms were developed, we have here a quantity introduced within twenty-four hours which approximates the amount of iodine required in the blood at any one time to prevent germ development. Accordingly, it is not altogether a ridiculous idea to endeavour to find a germicide which the blood will tolerate in sufficient quantity for the manifestation of germicidal powers.

Until this problem has been satisfactorily solved, one cannot but consider the hypodermic method of general medication to be a somewhat fallacious plan. Clinically, it may appear to give good results; but it cannot rest on a good scientific basis so long as such infinitesimal and inadequate doses are relied upon to effect what appear to be almost impossibilities.

b. Failing the further and more satisfactory development of the hypodermic method, numerous attempts have been made to accomplish by local parenchymatous intra-pulmonary injections a more active and effectual attack on one or more diseased foci. I do not here allude to the subject of the injection and drainage of pulmonary cavities; this is an entirely distinct, and for the most part a surgical question, which is beyond my province; but in speaking of parenchymatous injections into lung, I refer to the diffusion of a fluid throughout a diseased patch of lung, commonly more or less solid lung, on the principle of local treatment of a localised tuberculous process.

Such injections have been frequently performed by

Pepper of Philadelphia, Beverley Robinson* and White* of New York, Ransom† of Manchester, and many others. One of the most remarkable series of these is that of Professor Riva,‡ of Pavia, who endeavoured to inundate the parenchyma of the lung so thoroughly with the fluid as to destroy all the bacilli present; as much as 40 to 50 c.c. of a 1 to 3000 solution of mercurial bichloride was injected at one time, and in upwards of one hundred injections no accident occurred. The number of bacilli in the sputum notably diminished, but in no case did they entirely disappear. Our own experience at the Bristol Royal Infirmary is now considerable. My first series of cases was published in the *British Medical Journal*, October, 1886; and since that time injections have been frequently performed, although with only partial success. The first substance I employed for injection was iodoform, and for two reasons—that it had been found to be of service when given by the alimentary canal, and that it appeared to be the most active germicide which could be safely introduced in sufficient quantity.

The solubility of iodoform is as follows:

Absolute Ether	1 in 8
Rectified Spirit	1 in 80
Oil of Eucalyptus	1 in 8
Oil of Almonds	1 in 60
Olive Oil	
Vaseline Oil	

The solution in oil was soon set aside, because of the supposed risk of fat-embolism, and that in ether was adopted. This has only the disadvantage that, by causing temporary giddiness and head disturbance, the patient

* *New York Med. Record*, 1886. † *Med. Chronicle*, January, 1887.
‡ *New York Med. Record*, April 23rd, 1887.

becomes timid of the injection, and unwilling to have it repeated. The oil of eucalyptus was then chosen as the solvent; but in two cases it gave rise to so much pain and extensive pleuritis, that neither patient would have consented to the repetition of the process: accordingly, this solution was entirely discarded, and has not been again employed. The quantity of solution injected has usually not exceeded one grain of iodoform, it being thought that the local action of this quantity in the local patch of tissue injected might be sufficient.

The following case illustrates the use of iodoform injected into the lung, and the subsequent course of the case:

Abraham L., æt. 30, chronic bacillary phthisis, had been under treatment for eighteen months as out-patient, from December, 1883, to July, 1885, and had taken iodoform during the whole period. Weight had increased from 8 st. 2 lbs., in December, 1883, to 8 st. 9 lbs., in September, 1884, after which time it remained stationary till May, 1885, when he began to lose weight, and had other symptoms of more active disease in the left upper lobe. Five injections of ethereal solution of iodoform were made into the consolidated patch during a period of ten days, at the supra-clavicular, infra-clavicular, and superior axillary regions. The first injection of ten minims of ethereal solution, containing two grains of iodoform, gave rise to cough, with momentary faintness; the following injections were limited to five minims, but some pain and a localised pleuritic friction followed the third; the fifth was followed by neuralgic pain in the shoulder and up the neck. The temperature continued to be subnormal, and the weight stationary. He was made out-patient in July, 1885, weighing 8 st. 4 lbs., and has continued to attend regularly ever

since. The following is a tabulated summary of the history to the present time, indicating the different kinds of treatment adopted:

DATE.	WEIGHT. st. lbs.	TREATMENT.	REMARKS.
1885—Aug. 24.—	8 8	... Iodoform and ol. morrhuæ.	
Oct. 10.—	8 10	... Easton's syrup.	Diarrhœa.
Dec. 7.—	8 11		
1886—Jan. 4.—	8 9	... Iodoform resumed.	
Feb. 8.—	8 11		
Mar. 22.—	8 11	... Pil. omitted.	Sight misty.
May 31.—	8 7	... Fellows' syrup.	No bacilli found.
July 5.—	8 5	... Iodoform resumed.	
Aug. 16.—	8 10		
Sep. 13.—	8 10		
Oct. 11.—	8 9	... Iodol gr. j. in pill, t. d. s.	
Nov. 8.—	8 11	... Iodol with terebene.	
Dec. 6.—	9 0		
1887—Jan. 17.—	9 1		
June 6.—	9 1	... Iodol discontinued.	Giddy, drowsy.
July 4.—	8 9	... Subcutaneous injections of eucalyptus, iodol and vaseline, once or twice a week.	Some irritation followed.
Aug. 29.—	8 8		
Sep. 22.—	8 7		
Oct. 3.—	8 8	... Creasote in glycerine, *one minim*.	Headache, giddiness.
Oct. 17.—	8 10		
Nov. 28.—	8 12		
1888—Jan. 9.—	9 0		
Jan. 23.—	9 2		
Mar. 22.—	9 1	... Creasote increased, ♏iv. t. d. s.	
Apl. 5.—		... Subcutaneous injections of camphor carbolate, once or twice a week, ♏xx., for six weeks.	
Apl. 22.—	8 8		
May 3.—	8 8		
May 24.—	8 12	... Creasote ♏vij. t. d. s.	
Sep. 17.—			No bacilli in sputum.

This patient's general condition continues good: he has never given up his regular occupation, excepting when an in-patient in 1885. He has now no symptoms of active disease in the lung, but the physical signs indicate fibrous

condensation of the part originally affected. No bacilli have been detected in the sputum since the series of injections into the lung in 1885; and although he has had threatenings of active mischief, there has been no decided evidence of any progress or extension of the disease during the three years which have elapsed.

Various other solutions of iodoform and iodol were used hypodermically, but in each case there was more or less evidence of irritation in the cellular tissue, therefore no injection into lung was made with either; and in consequence of the unsatisfactory result of these early injections, the practice was discontinued for a time, until some fluid could be found which would not irritate the cellular tissue, and which might be powerful enough to modify germ development if injected into the lung.

I was reluctant to give up the idea that iodoform or iodol in some newer form of solution might answer our purpose; but after numerous demonstrations of local subcutaneous irritation from their use, I became convinced that it could not be a safe and harmless proceeding to inject them into the lung. On looking about to discover a substitute for them, and finding that carbolic acid, diluted with vaseline oil, was giving good results for hypodermic use in the hands of Meunier, it occurred to me that the saturated solution of carbolic acid in camphor, suggested by Dr. Cochran,* of Shomond, Wis., might answer the purpose. The 95 % solution of carbolic acid dissolves about three times its weight of camphor; the resultant being a thin, clear, oleaginous mixture, having a strong odour of camphor and a faint one of phenol. This fluid could be injected into the skin with impunity, and might be used as a solvent for iodoform (40 grs. to ʒj.).

* *Therapeutic Gazette*, Dec., 1887.

On testing the fluid, we soon found it possible to inject quantities of 30 to 40 minims beneath the skin without subsequent damage to the tissue injected; and after a few minutes' stinging, all evidences of irritation subsided. The fact that the carbolic acid was diluted with a substance which is itself an equally powerful parasiticide obviously gave the camphor a great superiority over the liquid vaseline, and it was assumed that the compound, although not irritating, must be a powerful germ-poison. Numerous cases were treated with this fluid, in all hypodermically at first, in many by intra-pulmonary injection afterwards. Two such cases are reported in detail in the September number of the *Bristol Medico-Chirurgical Journal*, page 185.

Solutions of iodoform, iodol, and creasote in the carbolic camphor were used hypodermically; but as they always gave rise to some local irritation, were not employed for injection into lung.

The result of these cases, and many others, appeared to show that in the camphor carbolate we had a fluid which might be injected into cellular tissue, and also into lung, without giving rise to local irritation or toxic symptoms: it caused little or no cough, and the patients continued to improve steadily under its use. In one case there had been evidence of temporary pneumothorax, which soon passed off, leaving the lung apparently as good as before: this was the only untoward event arising from it, and we had got to look upon this fluid as non-irritating, and its injection into the lung as a perfectly harmless proceeding, when the following case occurred:

Francis G., æt. 62. No family history of phthisis. An attack of bronchitis last winter, and a succession of colds, followed by continued cough, with expectoration and wasting. On June 30th coughed up some blood, and

again on several occasions during the two following days. On admission, July 3rd, was found to be a spare, but not emaciated man, with good colour and clubbed fingers. Complains of paroxysmal cough, and brings up bright-red blood frequently. Right upper lobe dull, front and back, with weak breath-sounds and sibilant rhonchi. Doubtful sounds at left apex also.

July 5. Hæmoptysis had ceased, but temp. was 102°.

July 6. Sputum purulent, nummulated, with bacilli in small number. Temp., evening, 99.8°

July 18. Subcutaneous injections of biniodide of mercury, watery solution of 1 in 1000, given in left forearm, ♏xxx.

July 19. No irritation followed; injections continued daily.

July 24. Hydrarg. biniodid, with iodide of potassium, dissolved in camphor carbolate, 1 in 500, injected into forearm.

July 29. Injections had been repeated on 25th, 26th, 27th, and both arms were much swollen in consequence. Injection now repeated in leg.

Aug. 4. Injections discontinued because of much swelling in leg. Temp. normal; general condition good. No more hæmoptysis.

Aug. 7. Camphor carbolate without mercurial, ♏ xxx, injected into buttock, and continued daily.

Aug. 11. No irritation from the injections. Large patch of dulness at right upper lobe, none in left; moist sounds, voice-sounds exaggerated, below and above right clavicle and in supra-spinous region. An injection into apex of right lung, immediately below clavicle, one drachm of camphor carbolate being injected to a depth of nearly two inches, was immediately followed by much coughing,

and patient tasted the camphor in his mouth: shortly he complained of irritation in the throat, and expectorated much frothy mucus smelling strongly of camphor; afterwards there was difficulty in breathing and aphonia, with towards evening copious purulent expectoration.

Aug. 12. Difficulty in breathing had continued, and bronchial rales were heard now both sides of chest; the signs of bronchitis increased rapidly, breathing became more and more laboured, and he died at 2 a.m. on the 13th, about 40 hours after the injection.

At the *post mortem* examination a cavity was found in the apex of the right lung: it was superficial, as large as a small hen's-egg, and contained some grumous fluid. There was extensive tuberculous infiltration of the whole of the right upper lobe, but none elsewhere. The bronchial mucous membrane was much injected and thickened, and on section of lung thick muco-pus exuded from the bronchial tubes of both sides. It was clear that the fluid injected had gone at once into the cavity, and, finding its way along the bronchus, had set up irritation of the mucous membrane along the whole track. Such an attack of acute suppurative bronchitis, coming on immediately after an injection into the lung substance, shows that the fluid, although harmless in the connective tissues, is a powerful irritant to the bronchial mucous membrane, and therefore inadmissible for future use, inasmuch as, although it is not intended that the fluid shall find its way into a cavity or a branch of the bronchial tree, it is impossible to say when this may be the case wherever on the chest-surface the needle may be introduced. I have been extremely reluctant to give up the use of a fluid which was giving such excellent results; but the occurrence of one such accident as that described, and the

impossibility of guarding against the recurrence of similar results, compelled me to yield to the evidence of facts, and await the finding of a more satisfactory fluid before attempting further intra-pulmonary injections.

It was thought that the new substance, Sozoiodol, an acid sodium salt of iodparaphenolsulphonic acid, might have been of use; but, on injecting an aqueous solution under the skin, it was found to give rise to much irritation, and was discontinued. This had been the case also with boro-glyceride in glycerine, the sulpho-carbolates with and without creasote, oleic acid, solutions of mercurials, corrosive sublimate with ether in vaseline oil, and some others. Lépine* tried intra-pulmonary injections of 2 per cent. solutions of creasote in alcohol; and Dr. Leo Rosenbusch, of Lemberg, reports† a series of cases treated by injection of a 3 per cent. solution of creasote in almond oil. The injections were made by means of the Pravaz syringe, one-half syringeful being injected into each apex every second or third day.

Cough became less violent, temperature fell, sputum diminished, dyspnœa disappeared, and perspiration ceased. General condition and physical signs both improved. The creasote should be of vegetable origin.

One cannot but think that these cases illustrate the fallacies of the clinical method: the quantity of creasote injected must have been too small to give a decided result. On numerous occasions we have injected creasote solutions into cellular tissue, and always with the production of much irritation, so much so that we have not ventured to inject these solutions into the lung. An adequate dose will be certain to irritate: if no irritation occurs, the dose will be too little to be of service.

* *Medical Recorder*, March 20, 1888. † *New York Med. Record*, June 2, 1888.

A fluid, which, has been much used by Dr. White* of New York, has the following composition:

℞ Atropiæ ... ... gr. $\frac{1}{3}$.
Morph. Sulphat. ... ... gr. $\frac{1}{4}$.
Tinct. Iodinii ... ... ʒiij.
Acid. Carbolic. (pur.) ... ... ♏ 20.
Glycerin. ... ... ʒjss.
Aquæ ... ... ʒij.

Misce. Fifteen to thirty mimins for one injection.

This fluid we have found to be non-irritating to cellular tissue, and therefore admissible for intra-pulmonary use; it might be safely used for injection into lung, and the experience of Beverley Robinson† and Dr. White has been in favour of some such preparation of iodine, with or without carbolic acid. The various solutions of iodoform have always appeared to me superior to any other form of iodine administration, and hence the tincture has not as yet been submitted to any considerable test: the more so as the biniodide of mercury contains the germicide powers of the iodine to a much greater degree, and appeared likely to give more satisfactory results.

Recent observations with regard to the treatment of syphilis by intra-muscular injections of mercurial salts‡ appear to show that the most powerful of all germicides, the biniodide and the perchloride of mercury, may be used with impunity; and the cases treated by Miquel and Rueff§, by means of pulverisations of 1 in 1000 of the biniodide, appear to have been benefited by this mode of treatment. The solution used by Bloxam was as follows:

Hydrarg. Perchlorid. ... ... grs. 32.
Ammon. Chloridi... ... ... grs. 10.
Aquæ ... ... ʒij. Misce.

* *New York Med. Record*, May 22, 1888. † *New York Med. Record*, Jan. 10, 1885.
‡ J. Astley Bloxam, *Lancet*, April 28, 1888.
§ *Tuberculose Pulmonaire*. Paris. Masson, 1888.

Ten minims, containing one-third of grain of the salt, injected once a week, gave good results in syphilis.

A solution used by Yvon, which gave rise to no local reaction, is made up as follows:

Hydrarg. Biniodid.	...	...	gr. j.
Potass. Iodid.	...	...	gr. j.
Sodic Phosphat.	...	...	grs. ij
Aq. destillat.	...	ad ℥ 50	Misce.

Five minims = $\frac{1}{10}$th of a grain.

The biniodide of mercury is said to be the most powerful antiseptic substance known, and the following summary of a table given by Miquel and Rueff* is worthy of study:

Biniodide of Mercury—Solution aseptic				at 1	in 40,000
Iodide of Silver	,,	,,	,,	1	,, 33,000
Peroxide of Hydrogen	,,	,,	,,	1	,, 20,000
Bichloride of Mercury..	,,	,,	,,	1	,, 15,000
Iodine	,,	,,	,,	1	,, 4,000
Iodoform	,,	,,	,,	1	,, 1,660
Sulphate of Copper ...	,,	,,	,,	1	,, 1,100
Acid Salicylic	,,	,,	,,	1	,, 1,000
Carbolic Acid	,,	,,	,,	1	,, 300
Tannin	,,	,,	,,	1	,, 210
Arsenious Acid	,,	,,	,,	1	,, 165
Soda Salicylate	,,	,,	,,	1	,, 100
Sulphate of Iron	,,	,,	,,	1	,, 90
Alcohol	,,	,,	,,	1	,, 10
Hyposulphite of Soda...	,,	,,	,,	1	,, 3·7

The biniodide of mercury is therefore the substance which seems most likely to be effectual for the purpose in view, to act as a local germicide on a diseased patch. If a satisfactory solution can be found which may be injected into the lung without risk of injury, and in sufficient quantity, it seems likely that the local germicide action may be efficient and without risk from general blood contamination.

* *Tub. Pulm.* Paris. Masson, 1888.

On the other hand, it should be noted that the mercurial salts do not take so high a relative position in the lists drawn up by Villemin,* who classifies various substances in accordance with their effects on the bacillus of tubercle. He finds that the following substances do not at all interfere with the growth of the bacillus :—Phenic acid, salicylic acid, biborate and benzoate of soda, aniline oil, &c.; and that in the second category may be classed those which give less prosperous and slower cultures, comprising—Acetanilide, arseniate of soda, biniodide of mercury, camphor, eucalyptol, quinine, resorcine, terpine, thymol, &c.

He observes that clinical experience shows that the mercurial biniodide, acid benzoic, acid salicylic, and borax are medicaments which destroy the germs of the air in wounds and elsewhere, but he affirms that their efficacy is *nil* with regard to the one particular species, the bacillus of tubercle.

The third last contains those substances which notably retard the development of the bacillus in the agar tubes, and comprises :—Arsenious acid, boracic acid, alcohol, chloroform, creasote, ether, iodoform, phenate of soda, salol, &c.

The fourth list comprises a small number of substances which completely sterilise: they are—Acid hydrofluoric, fluosilicate of iron, potassium, and sodium, naphthol α, naphthol β, and sulphate of copper.

He then remarks that the bacillus of tubercle has a very considerable vital power of resistance: that it is possible to retard its development, so that its reproduction is accomplished with great slowness; but it can only with difficulty be arrested completely.

* *Etudes sur la Tuberculose*, Tome II. Paris. 1888.

The substances mentioned as having the greatest power in this respect are being tested, and some of them have been well reported on as giving good results clinically. Hydrofluoric acid has been employed by Hérard, Lépine, Paliard, and others; but although good results have been reported from the inhalation of the diluted acid, the evidence is conflicting and as yet doubtful. Tannin has been well reported on by Caccherelli,* who says that, although from the antiseptic point of view it is inferior to many other drugs, from the anti-tuberculous point of view it has been found to be very useful and more efficacious than iodoform. Sulphate of copper had also its advocate, Prof. Luton, at the recent Congress in Paris; but it has yet to show its superiority over other substances.

Many of these drugs have been used by Dr. Cornet,† in his experiments at the Berlin Hygienic Institute; and it is disappointing to find how little success he obtained in his endeavours to render the tissues of animals unsuitable as a cultivating medium for tubercle bacilli. Tannin, sulphuretted hydrogen, bichloride of mercury, and creasote were all given in large doses in relation to the body-weight of the animal, and given by injection. Every animal died, from the inoculated disease, there being no hindrance to the development of the bacilli by any one of the remedies given. Further, it was found that infected guinea-pigs on being sent to Davos-platz, while others were kept in Berlin, all died about the same time.

In spite of the doubts thrown by Villemin on the efficacy of the biniodide of mercury, we have treated

* *Etudes sur la Tuberculose*, Tome II. Paris. 1888.

† *Lancet*, May 19, 1888.

some cases by the hypodermic and intra-pulmonary injections of this mercurial salt, and have found that it may easily be injected, day by day, in doses of $\frac{1}{10}$th of a grain, without giving rise to ptyalism; and when injected into the lung (gr. $\frac{1}{5}$) gave only temporary discomfort, with no rise of temperature. The following case has recently been under treatment:

Isaac T., æt. 55. Cough for six months, hæmoptysis on several occasions, getting thin, lost from 10st. 10lb. to 8st. 11lb., clubbed finger-tips, purulent expectoration with a few bacilli, patch of dulness in left upper lobe. Was injected daily with camphor carbolate, in drachm doses, for 17 days; then with iodine solution (White's), 15 to 30 minims daily for 10 days; then with hydrarg. biniodide, 10 minims (containing one-fifth of a grain), for 11 days: these injections were all hypodermic, usually in the buttock, and they gave rise to no irritation or discomfort. Three injections of the mercurial biniodide were then made into the condensed left upper lobe at intervals of one week; twenty minims was the quantity used on each occasion, representing $\frac{2}{5}$ths of a grain of the salt. The first gave rise to no cough, no pain, and no evidence of irritation at any time; the second, given in the axilla, gave some considerable pain, lasting for an hour, but no cough and no other evidence of irritation; the third, given on October 3rd, in the first interspace to a depth of two inches, caused no pain and no subsequent discomfort. Thirty-eight subcutaneous injections were administered in about as many days, the fluids used amounting to two ounces of the camphor carbolate, half an ounce of Dr. White's iodine solution, and quarter of an ounce of the biniodide of mercury, containing over two grains in all. Subsequently three injections were

made into the upper lobe of left lung, amounting to sixty minims, containing six-fifths of a grain of the biniodide.

The patient's temperature continued subnormal during the whole course of treatment, and the weight increased from 8 st. 11 lbs. to 9 st. 8 lbs. The expectoration gradually diminished, and contained only a very small number of bacilli; at last none could be obtained for examination. There was no cough, and the patient appeared to be in fairly good health, although there was of necessity still evidence of condensation in the left upper lobe.

This case, and others in which a watery solution of biniodide of mercury has been injected, quite encourage the view that this drug, whilst it is one of the most potent germicides, is at the same time one of the least irritating for intra-pulmonary use. I shall therefore prefer this to any other fluid we have tried, until there arises evidence in favour of something better.

It will be seen that there is much to be said both against and in favour of lung injections. The following list of unsatisfactory results suffices to show that the method is not devoid of risks:

Acute suppurative bronchitis, fatal in 48 hours.

Acute pleuritis, two cases, speedily recovering.

Pneumothorax, temporary and harmless. (A similar case occurred to Dr. A. Ransome).

Intense pleuritic pain, lasting for hours, and requiring full doses of morphia.

Violent fits of coughing. (Iodoform poisoning, and hæmorrhage from lung, were observed by Dr. A. Ransome).

In the presence of such results as these, we cannot but hesitate before submitting a patient to a process which may entail serious consequences; but, on the other hand, it

seems likely that all these accidents may be avoided by increased experience and improved methods. In only one of the above was any real harm done to the patient: even in the case of pneumothorax the only discomfort was dyspnœa on exertion lasting a few days and the pleuritis cases speedily recovered.

We have learnt that for safety it is necessary that the fluid should pass into the lung-tissue itself; otherwise, if it reaches the pleura only, it may give much pain and pleuritis; if it reaches a bronchus or a cavity, it may give rise to bronchitis: in either case, if the fluid be injected slowly it will be possible to alter the position of the needle before injecting the whole quantity. Again, the effect of the injection must vary immensely with the qualities of the fluid injected and the quantity employed; as yet we are only on the threshold of possibilities in this direction, and are not even in a position to answer the questions, "What fluid is the best?" and "How much is to be introduced?" The results I have given may conduce to a more satisfactory solution to these questions. I have shown what fluids may not be injected without some risk. Possibly increased experience of the biniodide of mercury may confirm our present opinion of its safety and may establish its utility.

As regards the decision of what cases are suitable for injection, it seems clear that, in accordance with the principle of local treatment, we should exclude those in which both lungs are implicated, and also those in which the disease, although limited to one lung, is widely distributed throughout it. If the case is hopelessly beyond a reasonable probability of benefit from injection, I should myself prefer not to bring the method into discredit by adopting it uselessly. We are therefore limited to cases

where the mischief may still be looked upon as local, but these are the cases in which very active treatment does not seem necessary to the patient, who is unwilling to submit to active interference when not compelled to it by active symptoms. The principle I have adopted has been to adopt milder methods first, and only fall back upon the intra-pulmonary injections when other kinds of treatment are failing to arrest the disease.

c. Pulverisations and Inhalations.—These have been much in vogue of late. The recent debate on the subject of inhalations at Glasgow shows how divided opinions are as to their utility. I do not propose to enter into this question, but must suffice by remarking that, although clinically they appear to be of service, and more especially when given continuously, as advocated by Cohen and Burney Yeo, I have not been able to trace any definite curative result to their undivided use.

The inhalation of diluted hydrofluoric acid, first advocated by Bergeron, has recently been tested on rabbits by Grancher and Chautard of Paris, who found that inoculated rabbits died at the same time whether treated in this way or not.*

The pulverisations of biniodide of mercury employed by Miquel and Rueff appear to have been useful. They publish a series of 27 cases, and claim for the treatment the following general effects: increase of appetite and weight; diminution or disappearance of the pyrexia, night-sweats, and expectoration.

In five cases where the bacilli had disappeared from the sputum the pulverisations had been continued uninterruptedly for eight to ten months. It remains yet to

* *Therapeutic Gazette*, July, 1888.

be proved whether this method is likely to meet with general acceptance and to give good results.

I have spoken hitherto of the offensive method, aiming at the destruction of the tubercle bacillus and of the other bacteria which have been recently shown to accompany it in tuberculous lungs. Now it is generally admitted that as yet the defensive methods, by which the body is fortified to withstand the bacillary attack, have given the most satisfactory results; and it is believed by many that general hygienic surroundings, including diet, good air, and exercise, are of primary importance, leaving medicinal treatment altogether in the background. There cannot be two opinions as to the necessity for careful attention to all the conditions which may tend to improve the nutrition of the tissues; even if an attempt is made to attack the germs, every other effort to improve nutrition is of great importance, and should not be set aside in favour either of pulveriser, inhaler, or injection syringe. The only point to which I wish to give emphasis is the desirability of doing all which can be done by an entire alteration in the surroundings and conditions of life, such as a change of climate entails. Time prevents me from entering fully into this question, but we cannot close our eyes to the fact that a great diminution of atmospheric pressure, and pure, absolutely dry, and comparatively aseptic air, such as are to be found at Davos and other similar health resorts, have accomplished in individual cases what everything else has hitherto failed to do.

One other point must not be passed over in silence: the method of forced alimentation by means of the stomach-tube, called by the French "lavage and gavage." We all know how important is the function of digestion, and how great an influence anorexia and other gastric difficulties

have in counteracting all our efforts. If the nutritive processes be not active, the patient's condition is well-nigh hopeless: in the battle between the tissue protoplasm and the bacilli, the latter are certain to win in cases where the digestive powers are feeble and cannot be restored. In such cases as these, daily washing of the stomach, and the introduction of food in excess of that which could be swallowed, have given good results; but of this method I have had no experience, and therefore cannot speak with any authority.

Gentlemen,—It only remains for me now to thank you for the honour you have conferred in placing me in this Chair, and for the patient hearing you have given to my theme. My predecessor, quoting his favourite author, might remind me that "it is better to be brief than tedious." I fear I have incurred some risk of the latter, and will not take up more of your time by any eulogy of the Society, or by any details of its history. The minute-book bears witness to its prosperity in the past, and its quarterly journal is a visible demonstration of its utility in the present. As regards its future, I trust that no cloud will arise to impede its progress, but that we shall continue to advance and expand until in the new Medical School of the not distant future, we shall have a local habitation, with a library, and be even more worthy of support and sympathy from all the medical fraternity of the West than as yet we can claim to be.

Clinical Records.

CASES ILLUSTRATING THE SURGERY OF THE THYROID BODY. By W. H. HARSANT, F.R.C.S., Surgeon to the Bristol Royal Infirmary.

Enlargements of the thyroid body may be classified as follows:—

1st. Vascular.
2nd. Cystic.
3rd. Adenoid.
4th. Fibrous.
5th. Malignant.

In the first variety, such as we meet with in Graves's disease, local treatment seems of little avail, but in all the other kinds surgical treatment of one kind or other may be of value, and it is a problem of great interest to decide under what conditions each form of treatment should be adopted. Upon the treatment of the cystic variety much has been lately said. Some surgeons, such as Sir Morell Mackenzie and Mr. Mark Hovell, recommend injection of the cyst with a solution of perchloride of iron until suppuration has been produced, and then treating the abscess thus formed by free drainage; and others, as Mr. Mayo Robson, advise an incision into the sac and then suturing the cyst wall to the edges of the skin.*

I have never been called upon to treat a case of this

* My colleague, Mr. Paul Bush, has lately treated a case of large cystic goitre in a man by this means, but it is too early yet to tell the result.

variety, so I do not propose to discuss it now; but in the treatment of the third variety, or simple hypertrophy, we have a choice of several measures:

1st. We may content ourselves with local applications, such as iodine in some form, or the biniodide of mercury combined with the direct rays of the sun! as advocated by Dr. Monat, and stated by him to be so effectual in India.

2nd. We may use injections of tincture of iodine or solution of ergotin into the substance of the tumour.

3rd. We may divide the isthmus of the thyroid body.

4th. Or we may excise the gland wholly or in part.

I would lay it down as a general rule that no cutting operation should be performed in this variety of enlarged thyroid unless dyspnœa, or dysphagia or aphonia be present, so as to cause serious distress or even danger to the patient.

Even then it is generally wise to try the effect of external remedies and of injections into the tumour before proceeding further.

Case of simple hypertrophy of the thyroid body in a young lady, causing severe dyspnœa, cured by repeated injections of tincture of iodine into the tumour.

A. S., aged 21, a dressmaker, came under my care in December, 1885. She had been suffering from an enlargement of the thyroid for several years, but difficulty of breathing had only come on a few weeks before I saw her.

The tumour was of considerable size, involving both lobes, but the right was double as large as the left. Inspiration was noisy and difficult, and if she took any exercise the dyspnœa became alarming. Upon one occasion she was carried into a shop in a very serious condition, and a surgeon who was called in was very nearly performing tracheotomy.

I injected 10 minims of tincture of iodine into the tumour every week for three months, and it steadily

diminished in size, while the dyspnœa at the same time grew less. I then lost sight of her for a time, and on seeing her again about a year afterwards I found that the thyroid body was of normal size and the breathing quite easy.

I have treated a large number of cases of simple hypertrophy of the thyroid body by means of injections of iodine and of solution of ergotin, and I am bound to say that in the large majority of cases the result has been disappointing.

In a few, the tumour has diminished, but in the majority there has been no perceptible improvement, even after a long and steady perseverance with the treatment.

It is quite possible that we may yet find a drug that will prove efficacious when injected into the tumour, but at present we are often driven to perform some cutting operation in those cases which are causing severe dyspnœa, or are otherwise endangering life.

I was very much struck with a series of cases reported by Mr. Sydney Jones in the *Lancet* for Nov. 24, 1883, where he cut down upon the isthmus of the enlarged thyroid, and having freed it from the trachea, ligatured it on each side and divided it between; the effect being not only to cure the dyspnœa but also to cause subsequent atrophy of the lateral lobes. I accordingly tried this mode of treatment in the following case, and was much gratified by the result. It was a very bad case, and the result was a perfect cure, brought about by a very simple operation.

Case of simple hypertrophy of thyroid body in a woman, causing severe dyspnœa, treated by division of the isthmus; cure.

M. W., aged 54, was sent in to the Bristol Royal Infirmary by Mr. Forty, of Wotton-under-Edge, on Oct.

16th, 1886. She had noticed an enlargement of the thyroid body for about three months, and during the whole of that time there had been dyspnœa, and latterly dysphagia also.

Both lobes were involved, and the isthmus was very large and hard, pressing firmly on the trachea.

Breathing was loud and difficult, especially on the slightest exertion. She could swallow liquids fairly, but solids passed with difficulty. The patient was very thin, but was otherwise in good health.

I tried two or three injections of tincture of iodine, but without any improvement; and, as the patient was anxious for something to be done to enable her to move about, I cut down on the isthmus on October 22nd, and having passed a catgut ligature round each extremity, I tied it tightly at both ends and divided it between, pushing it off from the trachea, which it was firmly compressing.

The result was a surprise to me, for not only did the operation cure the dyspnœa and dysphagia, but the lateral lobes at once began to diminish in size, and when she left the Infirmary on November 3rd there was very little enlargement of the neck visible.

In the two following cases it appeared to me advisable to remove a portion of the tumour rather than merely to divide the isthmus, for in the first case the right lobe was clearly the part which was pressing on the trachea and causing the dyspnœa; and in the other case the isthmus itself was converted into a large median lobe, which it was not safe to divide.

Case of simple hypertrophy of the thyroid body in a young man, causing severe dyspnœa, treated by excision of one lobe; cure.

J. S., aged 18, was sent to me at the Bristol Royal Infirmary by Dr. Parry on April 11th, 1888. He was a pupil teacher, and his thyroid body had been slowly enlarging for eighteen months previous to admission. During this time he had been rapidly losing flesh, and for the last few weeks he had been suffering from dyspnœa. For the

last three days the difficulty in breathing had been alarming, and he made a loud croupy noise with every inspiration and expiration, which was much increased on taking any exertion.

I made an incision in the median line of the neck on to the thyroid isthmus, and then another at right angles to this over the right lobe, dividing the sterno-hyoid and sterno-thyroid muscles.

The right lobe, being felt to be only loosely attached to surrounding structures, was then shelled out, slight adhesions being broken down by the fingers and the handle of the scalpel. All vessels were first clamped by forceps in two places and then divided between, by which means very little blood was lost. A large pair of forceps was next clamped on the junction of the right lobe and isthmus, preparatory to ligaturing, but on doing this the dyspnœa became alarming, until, the ligature having been tied tightly, the clamp was removed, when the dyspnœa at once ceased. The right lateral lobe was finally cut away with scissors, and the wound brought together with sutures, one small drainage tube being left in.

The patient made an excellent recovery; his difficulty in breathing gradually diminished until two months after the operation, when it entirely disappeared. He gained flesh and improved steadily in every way. When I last saw him, in August, the left lobe was very little larger than the normal size, and the scar over the excised right lobe was scarcely noticeable.

Case of enlargement of the thyroid body in a young girl, causing severe dyspnœa. Removal of the central portion of the tumour; atrophy of the remainder. Cure.

E. S., aged 13, was admitted into the Infirmary under my care on October 4th, 1888.

There was a family history of goitre, her maternal grandmother, mother, and one sister all being afflicted with it.

The patient first noticed an enlargement of the thyroid body two years ago, but for the last three or four months it had rapidly increased in size, and during this time she had been gradually suffering more and more from dyspnœa.

Her neck measured fourteen inches in circumference, each lateral lobe of the thyroid body standing out pro-

minently, and in addition there was a considerable swelling in the mid line of the neck and over the trachea, forming a kind of middle lobe. Her dyspnœa was distressing; she could not move across the room without fear of suffocation, and the noise she made during sleep could be heard for some distance.

On October 11th I removed the central portion of the tumour, making a median vertical incision only. I first passed a strong silk ligature around each side of the portion I intended to remove, and then dissected it off from the trachea and the surrounding parts and removed it with very little hæmorrhage. During the operation the breathing was at times very difficult, but it improved as soon as the tumour was completely removed.

She made an excellent recovery. At the present time the wound has healed with the exception of a small sinus at the lower part of the incision where the drainage tube was inserted. The lateral lobes have atrophied to less than half their former size, and they are still diminishing. The breathing is now perfectly tranquil and she can walk and run about without making any of the tracheal noise which so troubled her before. In addition to all these her general condition has much improved since the operation, and she now looks quite healthy and strong, whereas she was before very pale and weakly.

I have never yet had to treat a case of the fourth variety, or fibrous enlargement; but, in these cases nothing is of any avail except excision of the tumour, so I pass on to the fifth variety, or malignant enlargement, a case of which has lately come under my treatment.

A considerable number of cases of primary carcinoma of the thyroid body have now been recorded, but it is comparatively rare, and the following is the only case that ever came under my notice.

Case of primary carcinoma of the thyroid body in a lady; threatened death from suffocation; excision of the tumour. Death twenty-three days afterwards.

Mrs. T., aged 45, seen in consultation with Mr. Forty, of Wotton-under-Edge. She had noticed an enlargement

of the thyroid for about four months, but it was only during the last two months that any symptoms were felt, these being dyspnœa and loss of flesh. During the last two months the tumour had rapidly increased and had become harder. The dyspnœa had been steadily increasing, and latterly had been extreme. It would come on in paroxysms, and threatened suffocation. Two nights before I saw her it was so bad that her friends thought she would not live through the night, the vessels of the face became congested, and there was œdema of the right side of the head and neck for several hours.

I saw her on October 19, 1888.

There was then a swelling about the size of a duck's-egg over the front and sides of the trachea, but rather more on the right than the left side. It was apparently growing from the isthmus of the thyroid body and was very firmly attached to the trachea. The skin over it was red, somewhat adherent to the parts beneath, and the growth itself was very firmly fixed to the deep parts. There were three or four enlarged glands above the right clavicle and one or two in the right anterior triangle of the neck. Respiration was very difficult, and it was evident that the trachea was much contracted by the tumour. The patient was very thin and weak, and expressed herself as confident that she could not live long unless something could be done to relieve her. I diagnosed it as a case of malignant disease of the thyroid body, and foresaw that removal would be a difficult matter, as the tumour was so firmly fixed to the deep parts.

Tracheotomy was out of the question, as the tumour reached to the upper border of the sternum, and the only possibility of relief to the breathing lay in an attempt to remove the tumour. This I accordingly did, and after considerable difficulty I succeeded in removing the whole of the tumour.

I began by dissecting it up from the trachea below, and as soon as I had made sufficient room I made an incision into the trachea just above the sternum, and inserted a tracheotomy tube; this rendered the breathing, which had been becoming very alarming, at once perfectly easy, and I was enabled to complete the removal in a leisurely manner. The growth was very firmly adherent to the trachea, which was compressed so that only a very

small aperture remained; its walls were evidently infiltrated with the growth, which was also invading the neighbouring muscles. I was very ably assisted during the operation by my friend Mr. Forty, and chloroform was very carefully and effectually given by Mr. Simmonds. After the operation I removed the tracheotomy tube and sutured the opening in the trachea. All bleeding vessels having been then tied, I inserted a large drainage tube and closed the skin wound. Shortly afterwards smart hæmorrhage occurred and the breathing again became difficult; so, as I had left to catch a train, Mr. Forty promptly reopened the wound, reinserted the tracheotomy tube, and having tied the bleeding vessel restored her to comfort for the time.

I did not see the patient again, but Mr. Forty informs me that broncho-pneumonia ensued a few days afterwards, and she gradually sank and died on November 11th, twenty-three days after the operation.

Most writers are agreed that malignant enlargements of the thyroid body should be let alone, but in the above case I removed the tumour to save the patient from immediate death by suffocation. If there had been room to perform tracheotomy below the tumour I should have done so, but as this was impossible I could only prolong the patient's life by removing the tumour; and I should not hesitate to operate in a similar manner upon another occasion.

A CASE OF RAYNAUD'S DISEASE.*

By HENRY WALDO, M.D., M.R.C.P.; Physician to the Bristol Royal Infirmary, and in charge of the Department for Skin Diseases.

E. D., æt. 29, single. A general servant up to within three months. Admitted to the Infirmary 18th April, 1888. Father alive and well. Mother died sixteen years

* Read (and the patient shown) before the Bristol Medico-Chirurgical Society, April, 1888.

ago. Has one brother, and he is well. Lost one sister and one brother when they were babies.

Usual health very good, with the exception of what she calls a bilious attack, in which she gets much headache and vomiting, and visions move before her eyes and the sight goes. These attacks are less frequent than they used to be. No audible cardiac murmur. Arterial tension somewhat increased. Is subject to attacks of epistaxis. The knee-jerks are equal and exaggerated. She has noticed that her toes have been dark-coloured, and cold and sore for the last three or four years. They are worse in winter. There is also discolouration of hands and wrist, and of the face. Her feet and hands often get numb and cold: she has no feeling in them the first thing in the morning. She is subject to paroxysms of agonising pain, which occur on and off for a week at a time, and so severe is it that she is obliged to get up and walk about her room at night. She can walk well. Sensibility normal. Sight good. Urine 1024, acid, no albumen or sugar. Catamenia regular, and rather profuse. Tongue fairly clean. Bowels regular.

Raynaud first called attention to this condition as a very remarkable neurosis, and showed its alliance with the well-recognised, trivial, every-day complaint of numb or dead fingers. Young women and emotional persons are sometimes subject to their fingers going dead. Exposure to cold, taking a cold bath before breakfast, staying too long in the sea, anything which shocks or depresses the circulation, determines the event in certain individuals. Now if this state of the circulation is much prolonged, or if, from some further abnormality in the blood itself, the capillary nutritional interchanges are rendered impracticable, the part thus starved of blood does not reanimate,

but dies. Raynaud called this local syncope. A more serious state of affairs he called local asphyxia. Here the complete contraction of the arterioles does not blanch the vascular area; the part, a finger-tip perhaps, instead of paling, becomes livid, slate-coloured, purplish or black, stasis of blood, venous congestion—part numb, cold, lost tactile sense and local sensibility (anæsthetic and analgesic). The affected part does not bleed on pricking, and there is intense burning pain, only relieved by plunging the fingers into cold water. In local syncope there is complete absence of blood, and much cold. In local asphyxia there is some circulation of venous blood, and retention of heat. There is always a tendency to symmetry in these cases—upper or lower extremities, both ears, median parts, as tip of nose or over the coccyx.

Raynaud considered this disease a neurosis in which the normal excito-motor function of the spinal cord by which it presides over the vaso-motor nerves is exaggerated, and there occur cramp-like contractions of the arterio-capillaries, and to this is due the attacks of pain which is such a prominent symptom in these cases.

In the case I have shown you, in addition to discolouration of the extremities, the patient is subject to attacks of megrim, which is undoubtedly a neurosis; and I see Latham considers the pathological cause of megrim to be some affection of the vaso-motor nerves, in virtue of which the vessels become contracted and the tissues anæmic.

Vulpian, in 1875, described symmetrical congestion of the extremities observed in certain cases of neuralgia.

Billroth, in 1878, recorded a case of discolouration of finger-tips, followed by gangrene and necrosis of phalanges resembling paronychia, and terminating in exfoliation of small, dry, parchment-like crusts, of two years' duration.

The female sex seem to be preferentially affected with this disease, and it occurs mostly between the ages of 18 and 30. It is sometimes associated with diabetes.

Colcott Fox says, this year, that experience has shown him that sclerodermic patients with the extremities affected are very liable to suffer from attacks of Raynaud's disease of the fingers and toes. He also says that there is yet another class of cases in which congestive patches occur over the body (with or without urine changes), of all degrees of severity—evanescent, like urticaria patches, or superficially gangrenous.

This patient has suffered with what she calls chilblains of the upper part of the pinna of each ear—that part of the ear which seems to be least well supplied with blood, and it is the part affected most frequently in association with lupus erythematosus of the face and fingers—a disease which is thought to depend upon a faulty supply of blood to these parts.

In conclusion, I may say that many other skin-diseases undoubtedly depend upon a neurosis, and it is probable that many cases of pemphigus, herpes, and other cutaneous diseases are caused by a peripheral neuritis of sensory nerves.

Raynaud advises as drugs quinine and strychnia; also constant descending electrical currents down the spine. Barlow insists upon systematic daily *local* galvanising, rather than through the spine. Warm clothing and shampooing is also important in the treatment.*

* While this has been passing through the press, the patient has been readmitted to the Infirmary with gangrene of the finger-tips.

Reviews of Books.

A Treatise on Surgery. By T. Holmes, M.A. Fifth Edition. Edited by T. Pickering Pick, F.R.C.S. Pp. 1004. London: Smith, Elder, & Co. 1888.

A text-book which has reached a fifth edition in thirteen years ought to be good either on its own merits or by comparison with others. It is unfortunately the case in this country that the popularity of a text-book depends as much on its reputation for enabling students to pass examinations as on its real worth as a means of education. Thus, in surgery, it might happen that the work of a capable and honest teacher, reflecting the most advanced truth in his department, might be rendered nugatory simply because one or two men who stand at the examining portals have written a text-book which is either out of date or unsound.

With reference to the work now before us, we are bound to say that, as a means of educating the student, it is certainly inferior to every similar work in the English language. This is not saying it is altogether bad: simply that it is on the whole not so good as others. It would, indeed, be possible to go over the whole work, chapter by chapter, and show that, as an honest statement of the best surgery of the civilised world, it is deficient according to nearly every legitimate test. To do this would occupy far more space than we can spare; but it may be permitted us shortly to examine some of the sections which have been specially provided, or specially extended, for the fifth edition. These at least ought to be up to date and trustworthy.

The section on Diseases of the Bones and Joints has been specially added to. Redfern still does yeoman's duty in providing figures and ideas for the description of inflammation of cartilage. Brodie, too, and Rindfleisch are quoted. Now such names in a history of the advance of our knowledge of these diseases, for a large cyclopædia, deserve full recognition;

but in a short summarised account of them, for a book like this, they ought to be replaced or supplemented by others whose influence on extending or completing our knowledge has been greater. Indeed, we really want no names at all, if the accounts provided are reflexes of our present knowledge; but if names are given, let them be representative.

The section on Intestinal Obstruction, which is also greatly added to, is somewhat colourless and vague, as if written by one who had studied a good work on the subject, but had failed completely to master it. In the Treatment of Obstruction, he says: "The first rule of practice is to abstain from irritating the bowels with purgatives, to give nourishment in the fluid form only, and in the smallest possible quantities at a time, and to soothe the patient's suffering with opium, subduing thirst with small quantities of ice kept in the mouth." Venturing to call these *rules* of practice, we would remark that there is only one, the first—to abstain from purgatives—to which objection could not be taken. The administration of opium in any form of intestinal obstruction is undoubtedly a bad "*rule* of practice." The objections to it are so well known, and have been so frequently urged, that the most casual student must open his eyes at this "rule of practice" provided in our latest surgical text-book. As to the second rule, it might be pointed out that nourishment of any sort by the mouth simply lies unabsorbed by the stomach, and is returned with the other unabsorbed fluids. Rarely opium may be given, and sometimes food by the mouth; but not as "rules of practice." Not a word is said of enemata, the most valuable, if not the only, means of giving nourishment. And so it is all through. The writer has failed to grasp the most important points—a fatal fault in the writer of a text-book.

Of the whole chapter on Surgical Diseases of the Female Organs of Generation, nothing better can be said than that it is bad. In some cases it would seem as if names of operators were omitted with deliberate intention. Thus the description of the surgery of ruptured perineum "facilitated by an assistant putting his forefinger in the bowel" *(sic)* completely ignores the operations of such technical masters as Tait and Bantock, and provides a by no means efficient substitute. The operation of hysterectomy for fibroids is described: in the only point in which it is definite it is almo st ridiculous—thus: "Before the wire (of the serre-nœud) is tightened it must be carefully examined to ascertain that it does not include the fundus of the bladder or a loop of small intestine." A man who is likely unwittingly to include a loop

of intestine in the wire clamp, and leave it there till it is tightened, had better leave abdominal surgery alone.

"The ovary is liable to tumours of all kinds." Is it indeed? If we do personify that important organ (and there is precedent for it), we might truthfully say that She (feminine by preference) is liable to undergo misrepresentations, mutilation, and even complete detachment from the sources of life; but to be "liable to tumours of all kinds" is surely too heavy an indictment. "The fibroid tumours are at first difficult to distinguish from the cancerous, but the different rate of growth will settle the question ultimately." In the complete disregard of fact and experience this sentence approaches the sublime. Fibroid tumours are spoken of as if their diagnosis from cancers were a matter of every-day occurrence. Does the writer know how many times a fibroid tumour of the ovary has been found? Does he know that it is among the rarest of all growths? The "rate of growth will settle the question ultimately": we should think the death of the patient would be an earlier ultimate settling of the question. "No surgical interference is advisable in solid tumours of the ovary." Now a medical student who makes a statement like this should either be relegated to his studies, or be made to give very full reasons for going in the teeth of the opinions of those best able to judge.

The description of Ovariotomy is somewhat remarkable. It begins thus: "Ovariotomy is thus performed. The patient should have been well purged, and should have her legs covered with a pair of warm drawers. The room should be warm—nearly 70°. A large band is to be passed round the belly, of waterproof cloth with a hiatus for the incision. She should be in the recumbent position, on a firm table." How like to the examination-paper of a doubtful candidate is this! The passing round the belly of the well-purged and bedrawered patient of a band of waterproof cloth is followed by laying her in the recumbent position on a firm table! Has anyone, by the way, suggested that the operation be performed in the sitting position on a ricketty arm-chair? "An incision is made in the linea alba from a little below the umbilicus to a little above the pubes." A nice gash this through which to begin the removal of a big but simple ovarian cyst! "The surgeon introduces his fore and middle fingers, and sweeps them round over the cyst to ascertain in the first place if he is really in the peritoneal cavity (!), and secondly to feel for adhesions. These, if present, are gently separated from the wall of the cyst until the whole hand is introduced, and the cyst is freed from adhesions on all sides." If this is the prac-

tice of the author, he ought at least to have inserted a footnote to explain that it differs from that of all the best operators. Here, as elsewhere, the work and advice of competent teachers seems to be ignored in a manner that appears as if it were studied.

Take the treatment of the pedicle, for instance. "Three ways are in use for this purpose: viz., to fix a clamp on the pedicle outside the wound; to divide the pedicle with an ecraseur, cauterise it if necessary, and drop it back into the pelvis; or, to tie the pedicle with carbolised silk, cut the ligature short, and remove the tumour." Now it is surely needless to say to any even moderately educated man that the first two ways are *not* in use; and of the third way, that it would be true if, instead of "carbolised silk," we read "silk or catgut." The ecraseur and cautery for ovariotomy may be the substitute of a London surgeon for the method (by clamp, not ecraseur) of a certain individual named Thomas Keith, who is not unknown in the history of ovariotomy, but this substitute can scarcely be spoken of as a "way in use." Keith's method is not even recognised as being "in use"; but "the ecraseur and cautery if necessary" is put down glibly as one of the three recognised methods.

But we have lost patience with the whole article. The grandest operation of modern surgery was probably never more unworthily presented to a reading public. If this article has been written or edited by a "Member of the Court of Examiners of the Royal College of Surgeons of England" (as is said on the title-page), then teachers who try to place before their students the best surgical practice of the year of grace in which we live will have a desperate list of rejections among their pupils.

We heartily admit the difficulty which one or even two men must have in writing a book on surgery which will satisfy all critics. In America several authors have approached perfection as nearly as, in all probability, single men ever will; at least two in England have written admirable text-books; as to the work before us, while we gladly admit that much of it is good, we must say that not a little is indifferent, and that too much is distinctly bad.

Pathology and Treatment of Ringworm. By GEORGE THIN, M.D. London: J. & A. CHURCHILL. 1887.

Dr. Thin's skill in microscopical investigation, and in the delineation of the results thereof, are well displayed in this

monograph on ringworm. In simple language he gives a clear description of the different varieties under which this disease is met with in this and other countries, both in man and other domesticated animals whose skins are capable of forming a nidus for the parasite. Upon the subject of treatment Dr. Thin counsels above all things mild measures and patience; energetic plans of cure he does not think the severity of the disease is ever great enough to warrant. Even Dr. A. J. Harrison's method he thinks unnecessarily strenuous, and occasionally followed by untoward results. Epilation he does not consider to be of any use. In treating of the different substances and preparations which he has employed as applications, he leaves his readers at times in some uncertainty as to his exact meaning; thus, concerning carbolic glycerine: "the strength was 7 drams (of carbolic acid) to the ounce. I have used in some instances carbolic glycerine in considerably greater strength than even in this case," &c. It is difficult to see how a *considerably greater* strength than 7 drams of carbolic acid to the ounce could be obtained. It would have been better if such ambiguity had been avoided by all formulæ having been given in regular prescription form. With the exception of this one slight defect, we can thoroughly commend the book.

The Diagnosis and Treatment of Diseases of the Rectum. By Wm. Allingham, F.R.C.S. Fifth Edition. Edited by Herbert Wm. Allingham, F.R.C.S. Pp. 366. London: J. & A. Churchill. 1888.

The value of this excellent and well-known work of Mr. Allingham has been much enhanced by revisions and additions made by his son. We would refer to the chapters on Excision of the Rectum and Inguinal Colotomy as being specially good. Mr. Allingham, junior, has the credit of having introduced a method of inguinal colotomy which promises to take a permanent place among surgical procedures: this operation is clearly and modestly described. This is not the place in which to compare the relative values of inguinal and lumbar colotomy; but if lumbar colotomy should have to give way to inguinal, as seems not unlikely, the influence of the younger Allingham's operation in determining the choice must be not inconsiderable.

Anæsthetics: their Uses and Administration. By DUDLEY WILMOT BUXTON, M.D. Pp. 164. London: H. K. LEWIS. 1888.

We have formed a most favourable opinion of this little work, the latest of Lewis's Practical Series. Written by a man of large experience, who has also studied the literature of his subject, the book is just what one seeking to become an administrator of anæsthetics wants. It is eminently practical; well up to date; clearly and tersely written; and is very complete. We may congratulate the author on having succeeded in his attempt "to indicate that the matter dealt with has a scientific as well as a work-a-day aspect, and that he who desires to be more than a mechanical (and hence dangerous) administrator of anæsthetics, must be scientifically as well as practically educated in his art."

On Aphasia: being a Contribution to the Subject of the Dissolution of Speech from Cerebral Disease. By JAMES ROSS, M.D., LL.D. Aber. London: J. & A. CHURCHILL. 1887.

If, as is indeed the case, apology is due to Dr. Ross for the delay which has occurred in reviewing his book, that delay has arisen from the fact that his book, though not large, is so admirable, and withal somewhat abstruse, as to have caused its reperusal to be deferred from month to month until a more convenient season. There are still points in connection with aphasia which, not having received their certain explanation, remain subjects for the exercise of individual opinion: if Dr. Ross does not hesitate to put forth his own views in a clear and philosophical manner, he also quotes, with foot-note references, the views of other neurologists also upon such topics as are still in question, as well as upon those whose solution is now placed beyond doubt. Against Dr. Broadbent's peculiar subdivision of the faculties of the mind concerned with speech, he delivers himself of a mild Philippic, and certainly has the best of the argument. There are a few excellent woodcuts and diagrams (how much deficiency of fact a clear diagram may hide, as someone has remarked), which serve thoroughly well their explanatory purpose. By no means the last word has been spoken upon the subject of

aphasia; and in another edition, which we shall hope to see, incorporating the latest facts and views, Dr. Ross will be able to bring his work up to date, and correct the typographical errors which detract from the excellence of this valuable book.

Manual for the Physiological Laboratory. By V. D. HARRIS, M.D. Lond., F.R.C.P., and D'ARCY POWER, M.A., M.B. Oxon., F.R.C.S. Fourth Edition. London: BALLIÈRE, TINDALL, and COX. 1888.

A book that has reached four editions obviously supplies a want, and supplies it satisfactorily, and therefore, like good wine, needs no bush. There are considerable improvements in the present edition; especially in the sections on Practical Physiology and Physiological Chemistry, the latter now occupying about twice the number of pages given to it in former editions. For the medical student this book supplies exactly the information he wants in a sound and reliable manner, and does not confuse him with details of experiments out of his compass. The practical directions are excellent; and among the minor advantages of the work are its clear type and neat binding.

Annual of the Universal Medical Sciences. A Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by CHARLES E. SAJOUS, M.D., and Seventy Associate Editors. Philadelphia: F. A. DAVIS. 1888. *Five volumes.*

These splendid volumes command our hearty admiration. As an embodiment, annually to be repeated, of all the recent work in all departments of our profession, nothing on so grand a scale has ever yet been attempted. All the best work of all the world has been laid under contribution; and the work has been collated, summarised and written by men who are always competent to handle it, and who are often themselves leading authorities.

The venture is a daring one: we trust it will command the success it deserves. We have read carefully those articles which deal with subjects with which we are familiar, and we

find them to be uniformly able, occasionally excellent, and very rarely deficient either in grasp or in fairness. A few obvious criticisms as to the arrangement and classification are deprecated in the preface, and will be remedied in future numbers.

Intracranial Tumours. By BYROM BRAMWELL, M.D. Pp. 170. Edinburgh: Y. J. PENTLAND. 1888.

Dr. Bramwell's clinical memoirs are always well worthy of perusal. This one, on intracranial tumours, although its foundation is almost purely clinical, and based on the author's keen and exhaustive observation, is also, as embodying much generalised and philosophic doctrine, a somewhat ambitious treatise on the whole subject of cerebral tumours. The work is in every sense commendable. It includes the latest researches and theories, is well balanced, clearly written, and abundantly and most admirably illustrated. The tendency of the day is seen in the surgical bent of the book, which has its practical outcome in an excellent chapter on Surgical Treatment of Intracranial Tumours, written by Mr. A. W. Hare.

On the Relief of Excessive and Dangerous Tympanites by Puncture of the Abdomen. By JOHN W. OGLE, M.D. Pp. 110. London: J. & A. CHURCHILL. 1888.

In a very learned treatise, embellished with classic quotations and a little scholastic philosophy, Dr. Ogle discusses the value of puncture of the abdomen for the relief of dangerous tympanites. The case is stated very fairly and honestly, for and against; the verdict of the author being favourable to the practice. In our view, even if we confined our attention to the evidence adduced, the verdict should have gone the other way.

But the whole question should have been narrowed down to more definite issues. Thus the author makes no attempt to separate distension by gas inside the bowels, from distension by gas or fluids lying free in the cavity; and he quotes cases of each variety as if they told equally in favour of tapping for tympanites. Then, again, he quotes various authors who have, chiefly in past times, spoken in favour of tapping

strangulated hernia as an aid to reduction; and surely he ought to have added that at the present day the practice has been entirely discontinued. Comparisons with animals are fallacious: the anatomy is different, and the disease is not the same. These differences should have been mentioned in speaking of tapping in gaseous abdominal distension in horses, cattle, and sheep. Finally, some attempt should have been made to classify the cases suitable for the operation—if there are any such; and also to meet some of the objections which so many men have urged against the proceeding—such as, that a good few cases have died of it, from extravasation of fæculent fluids into the cavity; that, in addition to this positive danger to life, the relief in most cases is only temporary; and that it does not attack the origin of the disease, while it displaces other proceedings which might do so.

We would resort to the proceeding only in two classes of cases. The first in dying patients, who are suffering greatly from abdominal distension; here it is a mode of euthanasia: the second in cases of sudden and inexplicable distension, where life is endangered from syncope or asphyxia; here it is simply the speediest mode of averting death, while we wait for the opportunity when proper remedial measures may be adopted.

Epitome of Diseases and Injuries of the Ear. By W. R. H. Stewart, F.R.C.S. Pp. 126. London: H. K. Lewis. 1888.

"Frequently asked by practitioners and students for some work of reference on Ear Diseases small enough to carry in the pocket, the author hopes," &c. This from the preface. Now, what is there peculiar about Ear Diseases, that a book treating of them, "small enough to carry in the pocket," should be so often asked for by practitioners and students? The dainty Elzevir, whether a cookery-book or a classic, had a reason for its diminutive size; but why Ear Diseases? We have nothing to say against the book besides grumbling over its small size and small print, and denouncing the only reason given by the author for writing it—that it should be small enough to carry in the pocket. Some day we shall have tablets of anatomy printed on pocket-handkerchiefs, and dissections modelled in miniature on sleeve-links.

The Medical Profession of the United Kingdom. The Carmichael Prize Essays. The first Prize Essay by WALTER RIVINGTON, M.B., F.R.C.S., London; the second by THOMAS LAFFAN, M.C.P.I., Cashel.

Although Mr. Rivington undoubtedly deserved the first prize awarded by the Council of the Irish Royal College of Surgeons, on account of the wider grasp and greater fulness of his essay, that of Dr. Laffan is, considering his opportunities as a remote country practitioner, very remarkable for the power and force of his language and the closeness and justice of his criticism.

We should like to see each of these books in the hands of every member of our profession. The ponderous volume of Mr. Rivington, containing 1200 octavo pages, may profitably be compared with the more handy volume of Mr. Laffan, containing only 385 pages; the two give full and accurate views of ourselves as we are in education, in practice, and in government. To the criticisms we would specially direct attention. The smug callousness of our General Medical Council; the complacent incapacity of the self-elected Committee of Council of the British Medical Association; the shifting instability and bewildering variety of medical education and examination; and a host of other matters are dealt with fairly and competently. We commend these volumes to the favourable notice of our readers.

On Infant Feeding and Infant Foods. By JAMES MCNAUGHT, M.D. (Edin.), M.R.C.S. (Eng.) London: JOHN HEYWOOD. 1888.

The few pages forming this booklet are a handy compendium of the well-known facts concerning the subjects therein treated.

In hand-feeding the author seems to recognise only the convenient, but dangerous, bottle with long tube, which has to be cleaned by brush. The earlier form of bottle with teat attached direct is much safer, but, of course, involves more trouble.

The chapter on Artificial Feeding contains much useful information about its latest developments. Attention is directed to the early "Symtoms *(sic)* of Rickets," and the

connection of this condition with improper feeding. It would be an addition to the terrors of maternity and a needless worry to the mother to follow the author's direction, that after the first three days "the child should be applied to the breast every two hours, night and day, for the first month." (p. 36).

This tiny volume affords one more instance of the bad taste of overloading a title-page with unrequired information about the author; but altogether it is characterised by much common-sense, and its facts are not obscured by unnecessary verbiage.

Student's Pocket Medical Lexicon. By ELIAS LONGLEY. A New Edition. Edinburgh: YOUNG J. PENTLAND. 1888.

Although this book bears the imprint of the well-known Edinburgh publisher, its appearance is so unmistakable, that in order to be assured of its trans-Atlantic origin, we wanted neither the author's address, which is given in the preface, nor the confirmation of its "American phonetic alphabet," by which the pronunciation is "plainly (!) represented." This alphabet contains so many terrifying Russian-like characters that we made no effort to master its detail, and we passed at once to an examination of the work itself. It contains no etymology; but with simple definitions, such as that which explains the neck to be "the part between the head and thorax," has such appalling looking words as "ecphyma," "emphyma," "inappetency," "pladarosis," "suggillation," "ulorrhagia," "vagitis." Nephrotomy is given, but neither nephrectomy nor nephorraphy, nor the analogous terms in reference to other organs; and in a book dated 1888 we expected to see definitions of leucomaines and ptomaines. Invagination is said to be "an operation for hernia by introsusception;" typhoid fever is described as "a fever differing from the typhus only in the depressed condition of the intestines;" gastrotomy is "an incision for removing a fœtus or tumor;" and symphysotomy, a discredited operation, is vaguely described as "the operation of enlarging the diameter of the pelvis, to facilitate parturition." These are samples of the extraordinary things we have seen in this work.

In an American book which is produced on the phonetic system, it is hazardous to say that anything is a misprint; but "lasceration" (under Fractura), "galactirrhœa," "ovaduct" (p. 9), and "aqua ammonæ," probably are such.

A list of abbreviations used in prescriptions is given. All these, intended for the guidance of the patient, should be abolished. Directions should be written in full in the language of the country. Much misconception, leading to serious results, might thereby be avoided. In order to be convinced of this, there is no need to believe the apocryphal story of the druggist, who translated *pro re nata*, "for the thing just born," very much to the risk of the child, and very little for the benefit of the mother for whom the medicine was intended. There is a lengthy list of "Poisons and their Antidotes." The list is not merely a statement of antidotes in the chemical sense, but purports to give directions for treatment. Strange to say, there is no mention of the hypodermic use of apomorphia for producing vomiting.

Altogether this book leaves much to be desired, and cannot be recommended to the medical student, or anybody else.

Nerve Prostration and other Functional Disorders of Daily Life. By ROBSON ROOSE, M.D. London: H. K. LEWIS. 1888.

The size of this book is in inverse proportion to the gravity of the disorders of which it treats. Functional disorders have this advantage, that the patient returns again indefinitely, as the case does not come to an end. It might be entitled a text-book of medicine with the incurable diseases left out, as it extends over a wide range of subjects, from neuralgia and epilepsy to lithæmia and albuminuria. It is not quite so dry as the ordinary text-book, and might even be classed with medical light literature: it is not, however, a medical novel, inasmuch as there is little which is novel in its pages. The author has the pen of a ready writer, and has produced a fat volume, on thick paper and in good type, which gives his experience of the usual methods in vogue by which the various forms of asthenia, as they are met with in every-day work, may be treated with more or less success. We doubt not but that the preparation of the book gave its author much pleasure and profit: its perusal by others will be equally entertaining, and may be undertaken at odd moments when the newspaper fails to give either instruction or amusement. Those who have time to read much will be interested in comparing their own experience with one whose resources are great and whose observation appears to be reliable.

The British Journal of Dermatology. Edited by MALCOLM MORRIS and H. G. BROOKE. No. 1. Vol. I. November, 1888. London: H. K. LEWIS.

This somewhat shabby-looking publication cannot be said to be premature. British Dermatology—a high-sounding term—ought long ago to have had a periodical of its own, and, in default of anything better, we are glad to welcome this monthly issue of six-and-thirty pages. The communications in this number are from Dr. Thomas Barlow, Mr. Jonathan Hutchinson, and Dr. Unna. If the editors are able to secure for future numbers the co-operation of workers such as these, the journal should be a success.

The reviews of books are well done. This is a department that should be carried on with entire fearlessness, as its work is perhaps the most important branch of journalism, involving as it does the recommendation of books which may have a life-long influence, prejudicial or favourable, on those who so often are induced to obtain them through journal-notices.

A useful "Précis" of current skin-work completes the number. We hope that in future the sheets will be stitched through the folds.

Essays in Preventive Medicine: Glycosuria, and the Period of Infection in Epidemic Diseases. By WILLIAM SQUIRE, M.D. CHURCHILL. 1887.

Prevention of Infective Fevers, and the Use of Disinfectants, with Notes on the Health of Children. By WILLIAM SQUIRE, M.D. CHURCHILL. 1887.

Temperature Observations on Infants and Children in Health and Disease. By WILLIAM SQUIRE, M.D. CHURCHILL. 1887.

These essays are a record of most interesting and valuable observations by one whose judgment may be trusted. The second of them attempts, for the first time since Gregory's work in 1832, to bring together the facts on "periods of incubation" and "duration of infection." The results are embodied in the following table for each infectious disease:—(1) of the time at which it is likely to show itself after exposure to infection; (2) the time after separation from infection when,

if no illness appears, we may conclude the disease has been escaped; (3) the time for the rash or other characteristic sign of the illness to appear after the first sickening for it; (4) the time from the beginning of the illness to the end of infectiveness.

Name of Disease.	*Usual Time of Incubation.* (1)	*Possible Interval.* (2)	*For Rash or other Sign.* (3)	*Duration of Infectiveness.* (4)
Small Pox ...	12 days	... 15 days	... 2 to 3 days	... 3 to 4 weeks
Measles	8 to 12 ,,	... 18 ,,	... 3 to 4 ,,	... 3 to 4 ,,
Scarlet Fever...	2 to 5 ,,	... 8 ,,	... 2 ,,	... 6 to 8 ,,
Rubella	10 to 21 ,,	... 3 weeks	... 1 to 2 ,,	... 2 to 3 ,,
Chicken Pox ...	10 to 14 ,,	... 2½ ,,	... 1 ,,	... 2 ,,
Mumps	12 to 21 ,,	... 3 ,,	... 1 to 5 ,,	... 2 or 3 ,,
Whooping Cough	6 to 12 ,,	... 2 ,,	... 1 to 3 weeks	... 6 ,, more or less
Diphtheria ...	2 to 12 ,,	... 2 ,,	... 1 to 2 days	... 6 or 8 weeks
Enteric Fever	5 to 20 ,,	... a month or more	...10 to 12 ,,	... 4 to 8 ,, or more
Typhus Fever	2 to 12 ,,	... fortnight	... 5 ,,	... 3 or 4 weeks
Cholera	2 to 5 ,,	... a week	... sudden	... uncertain

The above table illustrates the kind of work which the author records in his essays, which are full of information, and are well worthy of careful study.

Clinical Lectures on Diseases of the Urinary Organs. By Sir Henry Thompson. Pp. 470. Eighth Edition. London: J. & A. Churchill. 1888.

The critic who peruses the eighth edition of the work of our leading authority on urinary diseases has little more to do than chronicle the event. It is easy to find blemishes: in this case, like the spots in the sun, lost in the general effulgence of the orb, they can be discovered only by looking keenly for them.

Sir Henry loves his subject so well that he seems positively to resent interference, for improvement or otherwise, by any one else. Bigelow merely represents a casual advance on the practice of Sir Henry, who was gradually coming to the practice of lithotrity at one sitting. On p. 204 is the drawing of an apparatus which was invented soon after Bigelow's, and is described as "*original* aspirator of the author." Various operations for prostatic enlargement and prostatic retention

have been proposed and practised. Reginald Harrison of Liverpool, and McGill of Leeds, have done some good work in this direction, so far as we provincials are able to judge. Sir Henry mentions the name of neither, and very slightingly speaks of their work. An Indian surgeon, who has had an extraordinary experience and marvellous success in litholapaxy, has broken a lance with our author, and is practically ignored. Something is said of the electric endoscope; it will scarcely be credited that Fenwick's name is not even mentioned.

The editor of this Journal, in writing of Supra-pubic Lithotomy in a work on "Abdominal Surgery," had occasion to point out some errors in the history of the operation which Sir Henry provided for his special work on the subject. These corrections Sir Henry has quietly and without acknowledgment adopted in the work before us, and the hapless author is casually referred to in a footnote as "a recent writer" who "has thought proper to call public attention to my error in saying Pierre Franco of Lausanne, substituting 'Touraine.'" It is perhaps scarcely worth mentioning that this "recent writer" has not once printed the word "Touraine" in the whole of his book. It can scarcely be a printer's error, for we are further told "Franco was borne at Touraine," which is news indeed.

These are undoubtedly small blemishes—spots on the sun, as we have said,—and scarcely interfere with the value of the work as a teaching power. But in these days when knowledge is thrown broadcast, and the authority of words and the weight of popular estimation have had to give way to the authority of facts and the weight of scientific experience, nothing will satisfy us that is not candid, outspoken and faithful exposition of truth. And, if it is not right for a great man to ignore the labours of fellow-workers in his field, it is certainly not wrong for a critic to call attention to his faults in history, in courtesy, and in justice.

Notes on Preparations for the Sick.

Oleum Iodi.—The Blytheswood Chemical Company, Govan.

Messrs. Lorimer & Co. send us a sample of this, which is a solution of pure iodine, in about equal parts of vegetable oil and water. It contains ten grains of iodine in each fluid ounce, is intended for external use as an embrocation in the incipient stage of phthisis, chronic bronchitis, and other chest affections; also in chronic rheumatism, and in cases of scrofulous gland-swellings. The solution appears to have several advantages over the ordinary iodine paints: it does not stain the skin; it does not irritate, blister, or cause desquamation; and it must be more penetrating in its action. We should expect it to be especially useful in cases of ringworm of the scalp, and in other conditions where a penetrating germicide is desirable.

Pumilio Pine Products.—G. & G. Stern, London.

These are prepared from the species of pine which grows at altitudes of six to eight thousand feet above the sea, above the line of perpetual snow, where the stunted trees contain much more of the pumiline essence than those growing in warmer and less elevated regions. As it is scarcely possible that the patients should live amongst the growing pines, the products of the latter are transported to the patient elsewhere, and may be obtained in the form of **Pumiline Essence,** for inhalation; **Pumiline Extract,** for baths; **Jujubes,** &c. Their efficacy is now being fully recognised, inasmuch as the rapidly increasing demand for them is the best proof of their value.

Gunn's Oat Flour.—George Gunn, Bath.

This food is a useful addition to the dietary of the sick. It is quite different from the ordinary product of the oat, and is liked even by those who do not like oatmeal as commonly sold and prepared.

Cod Liver Oil Emulsion, with Hypophosphites.—T. BUXTON, Bristol.

This is a carefully prepared form of this excellent combination. Its usefulness in a variety of chronic disorders is thoroughly established.

From Mr. Buxton we have also received a sample of Ingram and Royle's **Natural Karlsbad Sprudel Salt**, which, elegantly mounted in glass bottles of 100 or 200 grammes, "gets produced in the salt administration of the Municipality of Karlsbad, in their own Sprudel Salt-works." It is too well-known and appreciated to require either comment or commendation.

De Miel's Perfect Health Biscuits.—INTERNATIONAL PATENTS ASSOCIATION, London.

These biscuits are well-made, palatable, and nourishing. In addition to the ordinary nitrogenous and carbo-hydrate elements, each biscuit contains five grains of combined phosphates.

Patent Poison Bottle.—E. S. HERMES, London.

This is an arrangement by which it is impossible for the most careless or ignorant person to administer poisonous lotions or liniments internally. The only opening is at the bottom of the bottle: accordingly, before the contents can be poured out, the bottle must be reversed. It possesses the disadvantage that after use it must each time be carefully wiped, as it has to stand upon the part from which the fluid has been poured.

Messrs. Parke, Davis & Co., of Detroit, Michigan, U.S.A., request us to intimate that Mr. W. H. Phillips is not any longer authorised to take any orders or to transact business of any kind for them.

PERISCOPE.

MEDICINE.

Sulphonal.—Dr. Garnier has given this new hypnotic an extended trial in the treatment of the insane, and considers it superior to paraldehyde, urethane, methylal, or chloral. He gives it in doses of 2—5 grammes, suspended in some menstruum, since it is insoluble in cold water, and re-precipitated on cooling from its solution in boiling water.

M. Mathes, a pupil of Professor Ziemssen, has lately published a thesis on Sulphonal. He gave it indiscriminately to patients suffering from all kinds of diseases, without observing any untoward results. Patients with cardiac affections were able to take as large a quantity as those suffering from pulmonary phthisis. He tabulated his results thus: Sulphonal has a complete soporific effect in 72 per cent., incomplete in 9 per cent., and none at all in 18 per cent. In 19 per cent. it gives rise to accessory symptoms, such as noises in the ears, dizziness, slight headache, general fatigue, and, exceptionally vomiting. No disturbance of the respiratory, circulatory or digestive systems was observed. M. Mathes concludes—

1. That sulphonal is an useful hypnotic, though not always absolutely certain.

2. It has no taste nor odour, and does not interfere with the functions of any of the chief organs.

3. It only produces bad effects in a small number of cases, and these, when present, are not serious.

4. The dose varies according to the individual susceptibility. The average dose is about a gramme; it may be increased if necessary. If it causes any disagreeable symptoms, the dose is to be reduced.

5. On account of the slowness of its action, it must be given at least an hour before the customary bedtime.

6. When insomnia results from cough, or from any but neuralgic pain, sulphonal is contra-indicated. In many true neuralgias it is most valuable.

The above statements have been confirmed by many other German observers.—*Le Progrès médical*, October 13th and 20th, 1888.

Action of Hydrofluoric Acid on the Bacillus of Tubercle.—M. Jaccoud read, at the Academy of Medicine, a paper on this subject, in which he stated that, as the result of numerous experiments on animals, he had come to the conclusion that hydrofluoric acid in solution in water, up to the strength of equal parts of each, does not suppress or lessen in any degree the virulence of sputum containing tubercle-bacilli, and that it is powerless to modify the vitality of the bacillus. M. Hérard disagreed with these statements, and thought that M. Jaccoud's error lay in assuming that pure hydrofluoric acid was too powerful in its action to be used in practice; he had found, on the contrary, that air charged with the vapour of pure hydrofluoric acid can be breathed for periods of one hour with impunity, in the minimum dose of one litre per minute. He cited the experiments of Trudeau, of New York, as absolutely proving the destructive action of hydrofluoric acid on the bacillus. Tube-cultures of tubercle-bacilli remained sterile, and did not give rise to tuberculosis in animals when inoculated, after they had been exposed, in one series of experiments, to solutions of from 1—100 to 1—400 of hydrofluoric acid in water, and, in another series, to air that had been previously passed through a 1—3 solution of the acid. Further, long-continued inhalations of hydrofluoric acid had given excellent results in rabbits. M. Hérard was convinced of the value of these inhalations, and gave several examples of the good results obtained in his own practice. The remedy probably produces its beneficial action by increasing the appetite, by modifying the bronchial secretions, and so preventing the growth and multiplication of the bacilli in these secretions.

MM. Grancher and Chautard, in studying the same question, concluded that in experimental tuberculosis the action of the hydrofluoric acid vapour was *nil*. M. Jaccoud cited these observations in support of his view; but M. Hérard pointed out that, in such experiments, the intra-venous method of inoculation employed leads to generalised tuberculosis, and that by inhalations one could not expect to act on bacilli disseminated through all the organs of the body.

In connection with the many specific methods of treatment of pulmonary phthisis lately advocated, it is interesting to compare the results given in a paper by Dr. Dettweiler, the head of the Sanatorium of Falkenstein (quoted in *Gazette des hôpitaux*). At Falkenstein the essence of the treatment lies in constant exposure, so far as possible, to a pure, exhilarating atmosphere, combined with a liberal dietary, an amount of physical exercise suitable to each case, with rest and sympto-

matic treatment of pyrexia, &c. Of 1022 cases thus treated, 13.2 per cent. were completely cured, and 11 per cent. much benefited.—*Le Progrès médical*, November 3rd; *Gazette des hôpitaux*, November 8th, 1888.

Sea-sickness.—As the result of an elaborate series of experiments on animals, M. Pampoukis, of Athens, recommends the adoption of the following measures in order to avoid sea-sickness: Before going on board, surround the abdomen with a broad belt, in order to prevent displacements of the abdominal viscera from the movements of the vessel. Avoid during the voyage liquid foods or soups as far as possible; if necessary, take two or three small doses of brandy in the day. At the first feeling of vertigo, go and lie down in the cabin, and take cocaine, which, according to the author's experience, prevents sickness, but not vertigo. The best preventive measure of all would be to suspend the beds in the same fashion as the lamps on board ship.—*Le Progrès médical*, October 6th, 1888.

A Case of Subacute General Anterior Spinal Paralysis.—MM. Pitres and Vaillard report a typical case of the affection described by Duchenne under this title. The patient, a robust man of 43 years of age, took a violent chill, which was followed by shivering fits, a feeling of general malaise, colic, and tenesmus with slight diarrhœa. A month later, another attack of the same kind came on, with extreme feebleness; and six weeks after the onset of the illness, he came under observation, complaining of general weakness. The muscular feebleness was very marked. Two days after admission, paralysis, without affection of sensation, came on in the right shoulder, and shortly afterwards in the left. About a week later, the paralysis had extended to the arms, and to the muscles on the posterior aspect of the forearms. The patient now complained of great weakness in the legs; was barely able to stand, and could not walk at all. Seven weeks after admission, all motor power in the four limbs was completely lost. The muscles now began to waste, and to lose their excitability to the Faradic current in the order in which they had been involved in the paralysis. There was no affection of sensation, nor of the sphincters, nor of the organs of special sense, and no fever. A month later, there was œdema of hands and of the lower extremities, but no albuminuria. Slight signs of bulbar paralysis now showed themselves, with nocturnal delirium. Two months afterwards, the patient was in the same condition, except that he was

beginning to gain power in the right arm: at this time he died of an attack of lobar pneumonia.

At the autopsy, the brain and spinal cord were normal; the only abnormality found, on microscopic examination of the spinal cord, was a slight degree of thickening of the neuroglia in the lateral columns and in the columns of Goll. The peripheral nerves, both in the large nerve-trunks and their finest ramifications, showed considerable morbid changes of the form described as "degenerative neuritis," differing in degree only, and not in the nature of the pathological alterations, in different regions. Briefly, the changes consisted in breaking up or segmentation of the myelin sheaths (early stage), followed by complete atrophy, leaving empty nerve-sheaths mixed with finely varicose fibrils. The proportion of healthy nerve-fibres mixed with the atrophied fibrils in the nerve-trunks was exceedingly small. These lesions affected without exception the nerve-trunks and their branches in the four limbs. The anterior roots of the spinal nerves were much less altered. Individual nerve-fibres were found to be affected in the same way as the foregoing; but there were few diseased nerve-fibres, and these occurred individually, scattered amongst the very much larger proportion of healthy fibres, whilst here the morbid process never destroyed whole bundles of nerve-tubes as it did in the case of the peripheral nerves.

The symptoms of this affection resemble those of Landry's paralysis; but differ in the slowness of onset and progress. Duchenne thought that the seat of the lesion would be found in the motor cells of the anterior cornua of the spinal cord. The case is interesting, since it shows that in this undoubted instance of the affection in question, the peripheral nerves were affected almost alone, the slight change found in the spinal cord being unimportant. It also shows that profound alterations in the mixed nerves may cause only general motor paralysis without any affection of sensation. The authors give a brief account of the few cases of this rare affection that have been published hitherto.—*Le Progrès médical*, September 1st, 1888. J. MICHELL CLARKE, M.B.

LARYNGOLOGY.

The Persistence of Phonetic Troubles after the Removal of Post-nasal Adenoid Growths.—Cartaz recommends that such patients should be made to articulate slowly and in syllables, and that they should read as if they

were scanning. Also that they should practise the tonic sol-fa, sustaining the notes for some time. If these means are insufficient, he has recourse to electricity applied to the soft palate.—*Archives de Laryngologie*, December, 1887.

The Treatment of Suppuration of the Ear.—Verdos has obtained the best results from the use of powdered boracic acid or borax, used after the method of Bezold, in cases where the discharge is abundant, of long standing, and where there is no deep-seated mischief. If there exists periostitis, ostitis, or vegetations, he alternately uses boracic acid and nitric acid, very carefully applied.

Iodoform is also useful, in powder form, but not if hyperæmia is present. Its value is best seen in scrofulous cases, chronic or acute, and especially if there is ulceration of the outer part of the tympanic membrane, and of the external anditory meatus.

Corrosive sublimate, in ½ to 2 per cent. solution in glycerine, is a "precious" drug; but it must not be used in the hyperæmic stage.

Carbolic acid he considers to be of small value, but useful for syringing in 3 per cent. strength.

Sulpho-carbolate of zinc, in 1 to 2 per cent. solution, is only of value for syringing in cases of auricular furuncle.

If there be no perforation, remedies must be made to pass into the middle ear, and preferably in gaseous form—*e.g.* iodine, benzoate of soda, turpentine, tincture of benzoin, &c.—and are most valuable, as also aeration of the tympanum.—*Revue mensuelle de Laryngologie*, November, 1888.

[There is no doubt as to the value of the boracic acid treatment; but the powdered acid will dry on and irritate the meatus, unless this is carefully dried after syringing, and vaseline applied to all parts where the local action of the acid is not wanted. Iodoform is of very little value, salicylic acid and rectified spirit, both of great value, have unaccountably been omitted by the author.]

A Case of Laryngeal Stenosis due to Compression by Goitre.—Beverley reports the case of a woman, age 60 years, who was seized with a suffocative attack due to compression of the recurrents by a goitre, which was cured by removal of the thyroid.—*New York Med. Journ.*, January 28th, 1888. [This is an uncommon cause of suffocation, only discoverable by using the laryngyscope.]

Atrophic Coryza (Essential Ozæna).—Dr. E. J. Moure, after going very fully into the etiology and pathology of this condition, lays down the following rules for treatment:

A first irrigation of the nostrils, made with one or two litres of tepid sulphurous water, to which is added either chlorate of potash, bicarbonate of soda, or borax, in the proportion of a teaspoonful to the litre. This is followed by a second irrigation, consisting of half a litre of tepid water, with the addition of a tablespoonful of the following fluid:

Carbolic Acid	20	parts
Glycerine	100	,,
Alcohol at 90°	50	,,
Water	350	,,

In order that the patient may not get accustomed to this solution, he substitutes chloral, resorcin, salicylic acid, &c., for the carbolic acid every month. After the douches, the patient ends the treatment by spraying the nostrils or insufflation of fine powder. For spraying he uses:

	Carbolic Acid	2	parts
	Resorcin (Crystals) ...	3	,,
	Glycerine	50	,,
	Water	300	,,
Or,	Camphor	8	,,
	Tinct. Iodi	10	,,
	Tar	12	,,
	Alcohol at 90°	100	,,
	Water	200	,,

To be warmed and used to moisten the nose for one or two minutes after spraying.

Nasal douches must be carefully directed towards the naso-pharynx, and not up towards the root of the nose. They should be used tepid, and in small stream.

Thymol, Moure does not like, as it is painful and not certain in its action.

Surgical treatment he entirely discards, and Gottstein's tampons he has not found valuable, and very inconvenient.—*Journal of Laryngology and Rhinology*, November, 1888.

BARCLAY J. BARON, M.B.

SCRAPS

PICKED UP BY THE ASSISTANT-EDITOR.

Concentrated.—A Vassar graduate, out in the country, went into the stable of a farm-house. "Dear me; how close the poor cows are crowded together!" she remarked. "Yes, mum; but we have to do it." "Why so?" "To get condensed milk, mum." The sweet girl graduate went off relieved and enlightened.

School Anatomy.—The following was recently turned in as a *bonâ fide* composition by an Indiana schoolboy: "The human body is made up of the head, the thorax and the abdomen. The head contains the brains, when there is any. The thorax contains the heart, lungs, and diafram. The abdomen contains the bowels of which there are five, A, E, I, O, U, and sometimes W and Y."—*The Medical and Surgical Reporter*

Better than Nothing.—A very handsome man, of large form, fell off the railway platform at Camp Hill, falling under the train, and had one thigh and the leg of the other below the knee completely smashed. He was brought to the General Hospital, and both limbs were at once amputated. The case gave me much anxiety; but he continued to live, the wounds healing well. I found he was engaged to be married to a very nice, respectable young woman, whom I found one evening sitting by his side. I said I thought she should think very seriously about her engagement, hinting that I thought it had better be broken off; but she most naïvely said, "Oh! sir, I am quite content to take the rest of him."—Mr. Dickinson Compton in *Guy's Hospital Reports*.

Misconception.—The following verses must have been written in ignorance of the limitations which medical women set themselves in the practice of their profession:

Oh, she comes in silk and satin;
She is versed in roots of Latin,
As well as every root that grows below the mother-earth;
She reads Sanskrit, she reads Coptic;
She's the apple of my optic;
Of degrees she has a lengthy list, and Girton saw her birth!
Yet it sets my blood ashiver
When she asks about my liver;
And I stutter and am speechless when my tongue she wants to see,
For I'm fearful to expose it
In *négligé*—she knows it,
When her lovely eyes with tender light are riveted on me.
With my pulses at a hundred,
'Tis not strange that she has blundered,
And doctored me for fevers when I didn't have a sign;
'Tis her presence that is heating,
And which sets my heart a-beating,
For I'm only a poor mortal man, and she is so divine!
Still it's pleasant to be ailing,
Just to have an angel sailing
Into your humble room and fill it full of life and light;
But, as for a diagnosis,
Why, what anybody knows is
Impossible at such a time to formulate aright.

Doctors' Fees.—In *The Medical Age* (Detroit, U.S.A.) there has been a symposium on this question. Dr. F. J. Groner says: "When the practice of medicine is the business of a man's life, it is just as legitimate as any other business. It is no more proper for a doctor to do a long-credit

business, or a dead-beat business, than it is for men in any other field. The first great duty, of course, is 'to answer the cry of humanity.' The second great duty is to promptly send in your bill. . . . If you do not hear from your patron, promptly send him another reminder, or call upon him personally. By this means you will very soon find out whether he intends to pay the bill, or whether he belongs to a large class who never pay a doctor. There is too much sentimental nonsense in the idea that a physician must be an unselfish, devoted humanitarian, giving up the strong years of his life running after dead-beats. Business is business. . . . No true physician will refuse to do genuine charity work, or to extend credit to the worthy poor. Someone has divided the poor into three classes —the Lord's poor, the devil's poor, and the poor devils. The first and last are worthy objects of charity. The less you have to do with the devil's poor the better you are off. Never doctor them to have their good-will, or to have them say you are a good doctor. Sooner or later they will curse you. Give them to understand that your terms with them are cash. They will respect you, and when they get very sick will have money for you. . . . Physicians should unite and form protective associations, and refuse to extend credit to any party found on the delinquent list, until the old accounts are settled." (See *Journal*, p. 151.)

What are we to Know?—Canon Isaac Taylor, in an address on "Literature and Culture," has given some advice which, with some obvious modifications, doctors and medical students would do well to lay to heart. He said: "It is impossible for any one man to know everything—*omne scibile*. Two hundred years ago it was possible; but now the domain of knowledge has been so vastly extended that it is impossible. In these days, to be distinguished a man must be a specialist—he must devote himself to some department of knowledge. It is impossible, for instance, that the same man can be at once a great historian and a great chemist. It was said of Whewell, that while science was his forte, omniscience was his foible. Because he knew so much, he thought he could know everything; and so, if you strive after universal knowledge, what you will attain will not be science, but sciolism. Strive after universal knowledge, and you will become a universal smatterer. On the other hand, the mere specialist tends to become a narrow pedant. How shall we avoid these opposite dangers—sciolism and pedantry? I think the best rule for a young man to set before him in his studies is, to resolve to know something of everything, and everything of something. To know everything of something is to choose some one branch of science for your speciality, and to learn everything that can be learned about it: this will give you accuracy and precision. To become 'an authority,' as it is called, on some one subject, however small—on butterflies, birds' eggs, or even on postage stamps—is better than nothing. Still better is it to take some department of history, or of geology, or of philology, and master it thoroughly. But this is not enough. You will thus learn to be accurate, exhaustive; but you will be narrow. You must not only know everything of something; but, to gain breadth of mind, you should also resolve to know something of everything. Strive to take a general interest in every department of human knowledge. Strive to know enough of every science to enable you to listen intelligently to any great specialist you may chance to meet, and to read with profit any great epoch-making book that may appear. Such knowledge cannot be deep; but such an imperfect knowledge adds immensely to the intellectual pleasures within your reach, and will constantly throw light on that one branch of knowledge which you have specially made your own."—*The Church-Worker.*

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J. W. Arrowsmith, Printer, Quay Street, Bristol.